DOCUMENT RESUME

ED 246 496 CS 504 613

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TITLE A Review and Critical Analysis of the Literature Pertaining to the Diffusion of Educational Innovations.
PUB DATE Apr 75
NOTE 112p.; Paper presented at the Annual Meeting of the International Communication Association (25th, Chicago, IL, April 23-26, 1975).
PUB TYPE Information Analyses (070) -- Reports - Descriptive (141)

EDRS PRICE MF01/PC05 Plus Postage.
DESCRIPTORS Communication Research; Criteria; Curriculum Enrichment; *Diffusion (Communication); Educational Innovation; *Information Dissemination; *Models; Program Development; Program Improvement; *Teacher Education; Teacher Evaluation
IDENTIFIERS *Florida Assessment Diffusion System; *Theory Practice Relationship

ABSTRACT

Prepared as part of a program to develop both a system to assess information needs of teacher education decision makers and impact strategies to increase the probability that teacher educators will make appropriate use of research and development findings and products, this document reports on the literature review that led to the initial construction and subsequent modification of the Florida Assessment/Diffusion System (FADS) model. Following an introduction that reviews the entire program and the development of the FADS model, the report provides the following: (1) a rationale for a review of literature relevant to the FADS model; (2) a description of the procedures used in the review; (3) a glossary of technical terms relevant to the FADS model; (4) a schematic of the model; (5) a detailed description of the five components of the model--initiation, verification, problem solving, diffusion, and evaluation; and (6) a discussion of the form and substance of the type of diffusion theory most effective in the diffusion of educational innovations. (FL)

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A Review and Critical Analysis of the Literature Pertaining to the Diffusion of Educational Innovations

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ACKNOWLEDGEMENTS

This paper constitutes a revised section of the final report for two projects conducted during the latter half of 1974 at The Florida State University under the sponsorship of the Florida Research and Development Program. These integrated projects undertook a systhesis of needs assessment and diffusion strategies to create a model for upgrading teacher education programs by matching educational research products to practitioner needs. This paper contains a substantial revision of that section of the final report which undertook a review of literature influential in the initial construction and subsequent modification of the Florida Assessment/Diffusion System (FADS) Model.

The completion of this paper was possible only through the generous support of several agencies and individuals. Among the agencies that contributed to this paper's development, we particularly thank the following: (1) The Research and Development Program of the Florida Department of Education for its fiscal support; (2) Teacher Education Projects of the College of Education at The Florida State University for the considerable secretarial help provided in producing this and two earlier drafts of this paper; and (3) the College of Communication at The Florida State University for providing us with the expert typist responsible for typing the present version of this paper.

Among the individuals that contributed to this paper's development, we particularly thank the following: (1) Professor John Hansen of the College of Education for a general critique of the FADS Model and documentation of a simulation of the Model; (2) Professor Dick Lee whose editorial criticisms greatly strengthened an earlier draft of this paper; (3) Camile Ashcraft, James Becker, Sue Freedman, Barbara Fulghum, Barry James, Annie Johnson, and Kevin Toomb for critique and simulation participation; (4) Robert Hancock for his invaluable assistance in conducting ERIC searches; (5) Mrs. Evelyn Ashley and Mrs. Loralie Swan for typing and collating two earlier drafts of this paper, and (6) Mrs. Meryl Warren who gave most generously of her personal time in order to type the present paper.

The Authors

March 1, 1975

INTRODUCTION

This paper is one of two products produced in response to two separate but related projects under contract to Florida State University (FSU) by The Florida Research and Development Program. In paraphrased language taken from the original contracts, FSU was to develop: (1) a system to assess information needs of teacher education decision makers; and (2) two or more impact strategies to increase the probability that teacher educators would make appropriate use of research and development findings and products. Collaboration on related projects with colleagues at the University of Florida and discussions with existing agencies previously engaged in one or another aspect of needs assessment or diffusion led to several conclusions:

1. Needs assessment and impact strategies should be conceptualized as one continuous process.

2. A general model of that process is prerequisite to developing specific needs assessment or impact strategies.

3. The entire process must be "client centered"; i.e., the probability of impacting on any user audience is increased when the object of impact is a "best" solution to a specific need within a specific user system as identified by a specific client.

4. The term "impact strategy" is a specific application to a client setting of the more general term, "diffusion."

Acting upon these conclusions, a team of scholars representing three different but complementary areas of academic interest--instructional design and development, communication, and counseling education--collaborated in the design and development of a new model of diffusion in educational systems. This new model is called the Florida Assessment/Diffusion System (FADS) Model and describes a systematic procedure for identifying needs for educational change and developing procedures for implementing those changes.

Development of FADS Model

In its present form, the FADS Model is the result of dozens of "group think" sessions among team members transpiring over the latter six months of 1974. These sessions ranged in duration from two to eight hours in length and collectively constitute approximately 800 hours of group effort.

In December, 1974, the FADS Model was simulated in a mock role playing situation to determine its strengths and weaknesses. This "in-house" simulation took place over five, half-day time periods, with intervening time devoted to the agent team's planning.

For the simulation, a team of seven persons represented the executive committee of a Teacher Education Advisory Council as a specific client group. This team was assigned to play such roles as a high school principal; elementary and middle school classroom teachers, one of whom was the council chairman; a high school French teacher, a university faculty member, and a pre-service intern. One additional role filled for special purposes was that of district school superintendent. This person was invited in by agents and clients to provide certain information and perspectives needed in the deliberations.

The agent team consisted of three persons playing the roles of teacher educator, researcher, and an external teacher education center staff member. A process team, independent of the agent and client teams, observed and recorded all agent-client interactions, periodically provided interpersonal process data to the participants and documented the entire process. These records were used as a basis for making final revisions of the Model in its current form.

In addition to the simulation, the FADS Model was also discussed with various educational agencies that could at some future time benefit from using it. Specifically, the FADS Model was discussed with personnel within each of the following:

1. Florida Department of Education--Division of Elementary and Secondary Education, Personnel Development Staff.
2. Florida Department of Education--Division of Vocational, Technical, and Adult Education, Bureau of Research and Evaluation.
3. Florida Department of Administration--Division of State Planning, Bureau of Criminal Justice Planning and Assistance.
4. Leon County Teacher Education Advisory Council.

In each instance, a leader or leaders within the agency were contacted by a member or members of the FADS design team. At least one discussion was held with each agency; in two cases, a series of meetings were held to describe the various components of the FADS Model, to ascertain the extent to which the intent and processes of these components were applicable to needs as perceived by the agency representatives, and also to obtain suggestions for the Model's revision.

As a result of the group think sessions, in-house simulation, and discussions with educational agencies described above, it was possible to create and modify a model of diffusion in educational systems that is reasonably compatible with the conditions of the real world without having been empirically tested yet. In order to work further meaningful developments into the FADS Model, it will be necessary to conduct a series of field experiments which systematically test one or more of its components. This is the direction in which our current research interests are taking us.

Process Assumptions

The FADS Model presents a unique alternative to the generally accepted use of assessment and diffusion. This alternative approach offers the client several departures from and advantages over traditional models. In order to understand the advantages and appreicate the departures, a set of process assumptions must be stipulated.

The following constitute the basic assumptions relevant to the process employed with the FADS Model.

1. The agent team must have a high degree of technical and interpersonal skills in order to best serve the client.
2. During the process of implementing the FADS Model, the client is the ultimate decision-maker.
3. Constant client/agent interaction which facilitates cooperation is a key element in determining the success of the Model.
4. Long-term change is a necessity for many systems and social institutions, and the FADS Model is primarily designed to facilitate such change. However, it may also be adaptable to short-term problem solving.
5. The agent and client must agree on the problem and its pursuit, i.e., it is our problem.
6. Agreement to initiate or to continue using the FADS Model is negotiated at key points in the process of implementing the Model.
7. Either the client or the agent can, by negotiation or written prior agreement, terminate the implementation of the FADS Model.
8. At all points in the Model, conclusion and action suggestions made by the agent to the client should demonstrate a concern for and and a relationship to the client's perceived problems.
9. The agent is accountable to the client for both the effectiveness and the efficiency of the implementation of the FADS Model.

Advantages of the FADS Model

There are several distinct advantages of the FADS Model and it is useful to delineate them here. The FADS Model:

1. provides for a high level of face-to-face contact among agents, users, and target population(s). This interaction should lead to greater communication integration, thereby reducing system errors which are caused by inefficient communication networks and message interpretation.
2. is flexible enough to allow for procedural changes in response to specific user needs.
3. encourages a careful, systems-oriented approach to decision making.
4. provides for the evaluation of the idffusion process based on its efficiency and effectiveness, as well as its consequences to the user population.
5. encourages advance commitment to predetermined goals as a pre-condition for research and development.
6. provides for a multi-agency approach to solving the problems facing educators.

Departures from Traditional Diffusion Theory

The FADS Model differs in a number of important respects from the model of diffusion presented by Rogers and Shoemaker (1971). Perhaps the most striking difference is the cyclic nature of the diffusion process assumed in the FADS Model as opposed to the linear orientation implicit in Rogers and Shoemaker's model. In every major component of the FADS Model, the user must be acquainted or reacquainted with the range of options available to him and then guided to select those options that are best suited to meet his particular needs.

The extensive verification and problem solving components of the FADS Model involve the agent and client in a more complex pre-diffusion decision making interaction than that discussed by Rogers and Shoemaker. This particular aspect of the diffusion process has been expanded and made more sophisticated in the FADS Model, becuase it is precisely in the determination of the user's needs that many diffusion efforts fail. The agent realizes too late that the innovation selected is not relevant to the perceived needs of the user community.

In traditional diffusion theory, the persuasion function provides for the development of a predisposition to adopt a solution (innovation). Implied in this function is the assumption that the client will have the necessary skills needed to implement the solution. But seldom is careful enough consideration

given to the programs used in teaching the client how to use the innovation if they do not already know how to do so.

Knowing how to implement properly the innovation is, of course, crucial to the success of the diffusion effort. Thus, the FADS Model has incorporated within it an "action program" intended to fulfill two important needs: (1) design, develop, and implement pre- and inservice programs for teaching the client and target populations how to use the innovation correctly; and (2) design, develop, and implement "support systems", which will make it possible for the client and target populations to implement and maintain the innovation in the most effective and efficient manner possible.

The feedback and evaluation components of the FADS Model are stressed considerably more than in most other models of diffusion. In particular, formative and summative assessment procedures have been designed to evaluate three areas of concern: (1) the extent to which large numbers of the target population have adopted the innovation on a permanent basis; (2) the consequences, both favorable and unfavorable, for having adopted the innovation; and (3) the efficiency of the FADS Model as a systematic approach to diffusing an innovation. The results of these assessments can be used to substantiate claims of success for the diffusion effort and innovation effects, and also to further modify and upgrade the FADS model itself.

There is another important reason for emphasizing the evluation component. According to a recent survey conducted by Wolf and Fiorino (1973), educators are prone to implement full-scale adoption of an innovation without first having trial-adopted and evaluated it. Without a preliminary trial-adoption and accompanying evaluation, it is extremely difficult to determine how appropriate a given innovation is for a given target population. Indeed, lack of trial-adoption and accompanying evaluation may be one of the primary reasons why so many diffusion efforts fail in educational systems. Thus, the conduct of an exhaustive evaluation and field testing of an innovation, prior to full-scale implementation, have been stressed considerably more in the FADS Model than in most other models of diffusion.

The FADS Model is also unique in that it repeatedly stresses the need for documentation and dissemination of the results of formative and summative assessments. Documentation and dissemination of these results make it possible for change agents, researchers, educational decision makers, and other interested persons to learn of recent advances in diffusion research.

Finally, the FADS approach provides for branching alternatives at several choice points in the diffusion process. By evaluating and re-evaluating his needs and commitments at several points in the Model, the user is more assured of an assessment/development/diffusion program that is tailored to meet his unique needs.

The purpose of this and the preceding sections of this paper have been to briefly acquaint the reader with the development, purposes, and unique character of this Model. The remaining pages of this document are concerned with presenting a rationale and procedures for the review of literature, an element-by-element review of literature, which substantiates and further clarifies the FADS Model; and a perspective for developing a theory of diffusion for educational systems. However, before reading the review of literature proper, the reader is advised to study the glossary of technical terms and the graphic display of the model that immediately precede the review.

Note: For a more exhaustive treatment of the advantages and departures of the FADS Model from other diffusion models, the reader is encouraged to obtain a companion paper being presented on this year's ICA program under the sponsorship of the Mass Communication Division. The paper is entitled "A Systems Model for Assessment and Diffusion," by Kevin Toomb, Robert J. Kibler, Norman Dodl, Walter Dick, and Stephen Rollin. Included in this paper is a brief review of exant models of diffusion which were considered in the development of the FADS Model. Also included is an element-by element description of process and output statements, clearly explaining the mechanics of operation of the FADS Model.

Review of Literature

In general, exant literature reviews on the subject of diffusion are of two general types. One type is typically written in essay format and distills from the literature a list of findings or guidelines to follow in the selection and diffusion of an innovation. This type varies considerably in the depth and breadth of attention given to various aspects of the diffusion process. Some (e.g., Houska, 1969) review literature pertaining to several aspects of diffusion so as to distill broad gauged criticisms applying to the process taken as a whole. Other, such as Moore and Mizuba (1969) and Zaltman (1971), confine their attention to one particular aspect of diffusion. Both of these latter reviews are on the subject of perceived attributes of innovation credibility, with Zaltman's being considerably more extensive than Moore and Mizuba's.

A second type of literature review is primarily concerned with garnering support for a particular model or strategy of diffusion. Rogers and Shoemaker (1971) and Havelock (1971) have both reviewed the literature in this manner. The former review of the literature supports a five stage model of diffusion; the latter review of the literature supports a six stage model of diffusion. The literature review reported in this paper is of this second type in that it supports the FADS' five stage model of diffusion in educational systems.

Rationale for Review of Literature Relevant to FADS Model

There were several reasons for conducting this literature review. First, the literature review served as an indispensible tool to incorporate important modifications and revisions into the model. At critical junctures in the Model building process, the literature review was carefully studied for relevant input into the Model. In every instance where inconsistencies surfaced between the literature review and the Model, the Model--not the literature review--was modified. In this manner it was possible to build a model maximally compatible with existing knowledge on the diffusion process, with particular attention given to literature on the diffusion of innovations in educational systems.

Second, several elements in the FADS Model are relatively unique in that they are stressed with much more emphasis than they typically are in other exant models of diffusion. In this regard, the unique attributes of the vertification, assessment, and documentation and dissemination components have already been discussed above. An effort was made to locate and synthesize literature that clearly substantiated the need to emphasize these elements to a degree commensurate with the greater than usual emphasis accorded them in the FADS Model. Fortunately, it was possible to locate sufficient empirical and philosophical justification for emphasizing these components to the degree that they have been in the FADS Model.

Third, as noted previously, it was not possible to field test the Model using actual client and target population groups. To field test the FADS Model adequately would have necessitated many months of concentrated work, involving a wide variety of user systems, with each system necessitating a distinctly different application of the Model. Conducting a variety of comprehensive field tests of this sort would have simply demanded more time, personnel, and materials than were available. Consequently, it was necessary to employ an alternative means to provide support for the model. The alternative means decided upon was to conduct a literature review and locate as many empirically and philosophically based articles and documents as possible to provide support for the elements and components in the Model.

Aside from the need to garner empirical and philosophical support for the model, Todd and Andersen (Note26) identify two related reasons for conducting a literature review. First, it is a matter of professional courtesy recognize the substantive contributions made by other scholars. Second, the growth of science is by nature a continuous, cumulative and cooperative activity. It is primarily through a systematic synthesis of past, present, and future research activities that a meaningful pool of empirical findings and propositions will be established for theory construction.

In summary, it was necessary to conduct a literature review for a number of important reasons: (1) to obtain a conceptual tool with which to fashion and modify the FADS Model; (2) to garner empirical and philosophical support for its numerous elements and components, especially those representing significant departures from traditional models of diffusion; (3) to recognize the many substantial contributions already made by other students of diffusion; and (4) to integrate systematically the exant empirical findings and propositions necessary to begin sound theory construction. These reasons serve as the basis for conducting the literature review presented in this paper. A description of the actual steps taken in conducting the literature review, the format of its presentation and the literature review proper are presented next.

Procedures for Conducting Literature Review

Three different techniques were used to identify articles and documents for inclusion in this literature review. First an ERIC computer search was conducted, using approximately fifteen descriptors determined to be of relevance to the needs assessment/diffusion process. These computer runs producted a stack of approximatley 1500 abstracts of articles and documents potentially relevant to the FADS Model.

Each of these abstracts was then read to determine the significance of its potential contribution to the literature review. Approximatley 60 articles and documents were subsequently identified as being of particular importance. Of these 60 abstracts, complete copies of the original sources were obtained for approximately 40 of them. These articles and documents were then read and systematically built into the review of literature.

The second technique used was that of extracting sources referenced in two widely known books on the subject of diffusion. The two books used in this regard were Rogers and Shoemaker's The Diffusion of Innovations (Free Press, 1971) and Havelock's The Change Agent's Guide to Innovation in Education (Educational Technology Publications, 1973). There were definite reasons why these particular books were selected in preference to other books on diffusion.

Communication of Innovations represents an attempt to synthesize primarily empirical studies taken from twenty differnet academic disciplines concerned with the diffusion of innovations. By drawing from various empirical studies reported in this work, the generalizability of this literature review is partially extended to non-educational as well as educational systems.

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The Change Agent's Guide to Innovation in Education represents an attempt to synthesize literature particularly relevant to the diffusion of innovations in educational settings. By drawing from various state-of-the-art and empirical pieces cited in this work, the literature review was made particularly relevant to the diffusion of innovations in educational settings.

Third, a manual search was conducted in the library to identify and synthesize pertinent articles recently published in educational journals. A manual search of recent journals was deemed necessary in order to make this literature review current. As a result of this effort, approximately 100 articles taken from over 50 different educational journals were subsequently built into the literature review. Approximately 50 of these articles had a 1974 publication date.

Finally, some comments are in order regarding the nature of the entries included in this literature review. These entries are expressed in a variety of forms, including generalized empirically based statements, assumptions, propositions, recommendations, and insightful comments--all of which weigh heavily in the early stages of model building. In generating this wide array of entries, a concerted effort was made to locate materials for inclusion in the literature review that were both philosophically as well as empirically based. Logical positivists may take issue with our having given at least equal wight to philosophical, state-of-the-art sources as we have to those empirically based, claiming that the latter is far more important than the former. This assertion conflicts with two key assumptions underlying this review. One assumption is that during the early states in developing a model it may be equally important to consider insightful comments and speculations that are not yet supported by empirical data as it is to consider findings and propositions that are supported by such data. A related assumption is that purely philosophical and state-of-the-art sources may provide particularly important insights when authored by persons with considerable experience in implementing needs assessment and diffusion programs.

Format

This literature review is presented following a format similar to that used in Appendix A of Rogers and Shoemaker's (1971) book. Instead of discussing the literature in standard essay format here, it is presented in logically sequential units, each in support of one of the elements in the FADS Model.

A simple indexing system is used throughout to show relationships among entries. Each entry is assigned identification numbers followed by periods. The first number identifies the element in the model to which the entry is related. The second number identifies the major entry related to that element. The third number identifies additional entries subordinate to the major entry, and so on. For example, "1.2.3." refers to the third subordinate entry under the second major entry related to the first element of the model. This system has been designed to aid the reader in relating the pertinent elements of the model with the review of literature presented here.

Concluding Note

The reader is advised that this paper should not be considered as a final product. It is intended to be only one of a series of on-going attempts to synthesize systematically the literature relevant to the diffusion of innovations in educational systems. No claim is made that this review includes all or even most articles and documents pertinent to diffusion.

As mentioned earlier, this paper is intended only to present a purposive sampling of literature relevant to diffusion in educational systems and present this literature in a format supportive of elements and components in the FADS model.

Glossary of Technical Terms
Relevant to the FADS Model

Glossary of Technical Terms Relevant to FADS Model

AGENT - that individual or group that implements the processes called for in each element of the assessment/diffusion model.

ASSESSMENT POPULATION - that sub-set of an organization, agency, or user system from which information must be collected: (1) to verify present and ideal status; (2) to make a systematic analysis of need; and (3) to ascertain conditions within the total user system which will contribute to or constrain diffusion of a solution.

CLIENT - that individual or small group of individuals that represents the client population in transactions with the assessment/diffusion agent.

CLIENT POPULATION - that sub-set of an organization, agency or user system which seeks out the services of the assessment/diffusion agent for assistance in meeting a perceived user system need.

COMPONENT - that set of elements which comprises a major part of the overall assessment/diffusion model. This model includes five components: (1) Initiation, (2) Verification, (3) Problem Solving, (4) Diffusion, and (5) Evaluation and Documentation.

DIFFUSION - that process by which an innovation is communicated to the members of a relevant social system for the purpose of persuading those members to adopt the innovation. Included in the FADS Model is the evaluation of an innovation's adoption. Innovations are new ideas, procedures, or ways of performing that are typically developed as solutions to problems. Taken collectively, the last thirteen steps of the FADS Model may be identified as a generalized impact strategy.

DISSEMINATION - that process by which information is distributed to individuals or groups by some formal or informal set of procedures.

ELEMENT - a specific step in the assessment/diffusion model. Each element is operationally defined by those products required as input, the processes or actions called for, and the products or output which results from those actions.

MODEL (assessment/diffusion) - that set of interrelated components which define the assessment/diffusion process, referred to here as the Florida Assessment/Diffusion System (FADS) Model.

TARGET POPULATION - that sub-set of an organization, agency, or user system which is seen as the target of change, the adopter of an innovation, or ultimate user of a product.

USER SYSTEM - those populations which are operationally related for the purpose of diffusing a solution, product, or innovation. Typically, a user system will be composed of, at least, a client population, and a target population. These are not necessarily mutually exclusive.

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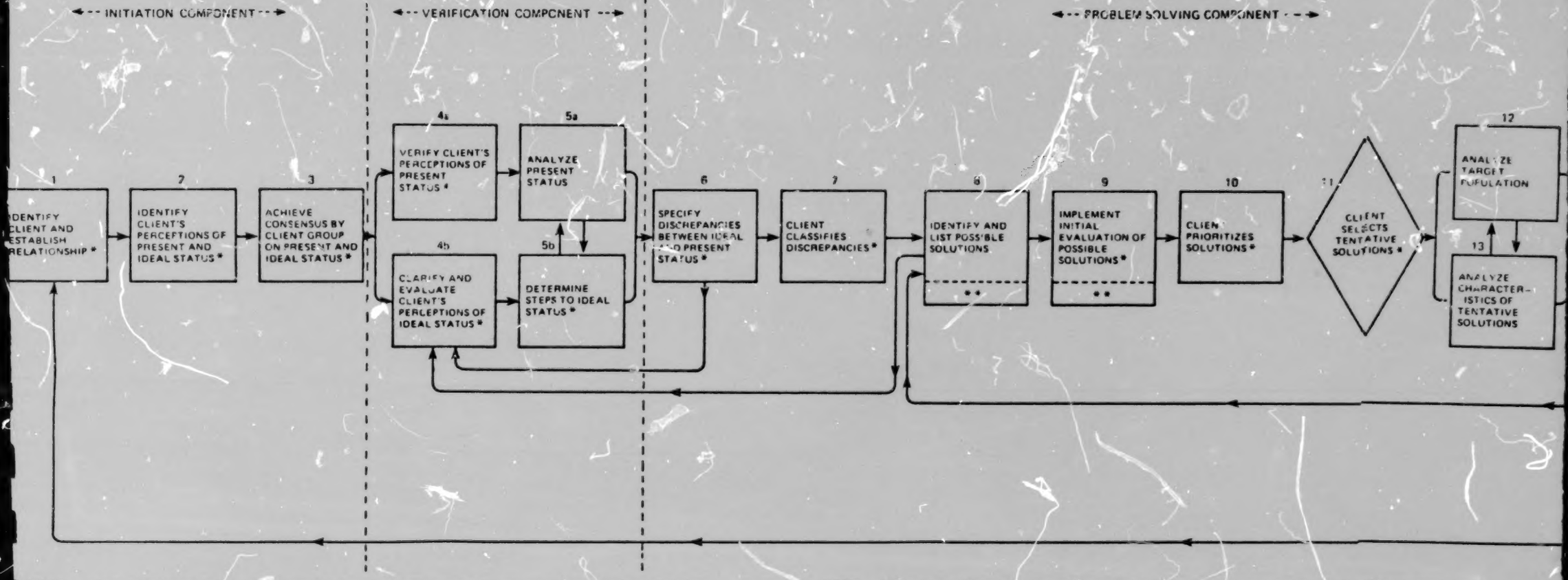
The Florida Assessment and Diffusion System (FADS) Model

FLORIDA
ASSESSMENT AND DIFFUSION MODEL
Final Report Version
FSU/DOE – December 2, 1974



NOTE – *Some client/agent interaction is demanded as part of the process of implementing this element. See the textual material for the precise nature of those interactions.

NOTE – **Some agent/target population interaction is recommended as part of the proces of implementing this element. See the textual material for the precise nature of those interactions.

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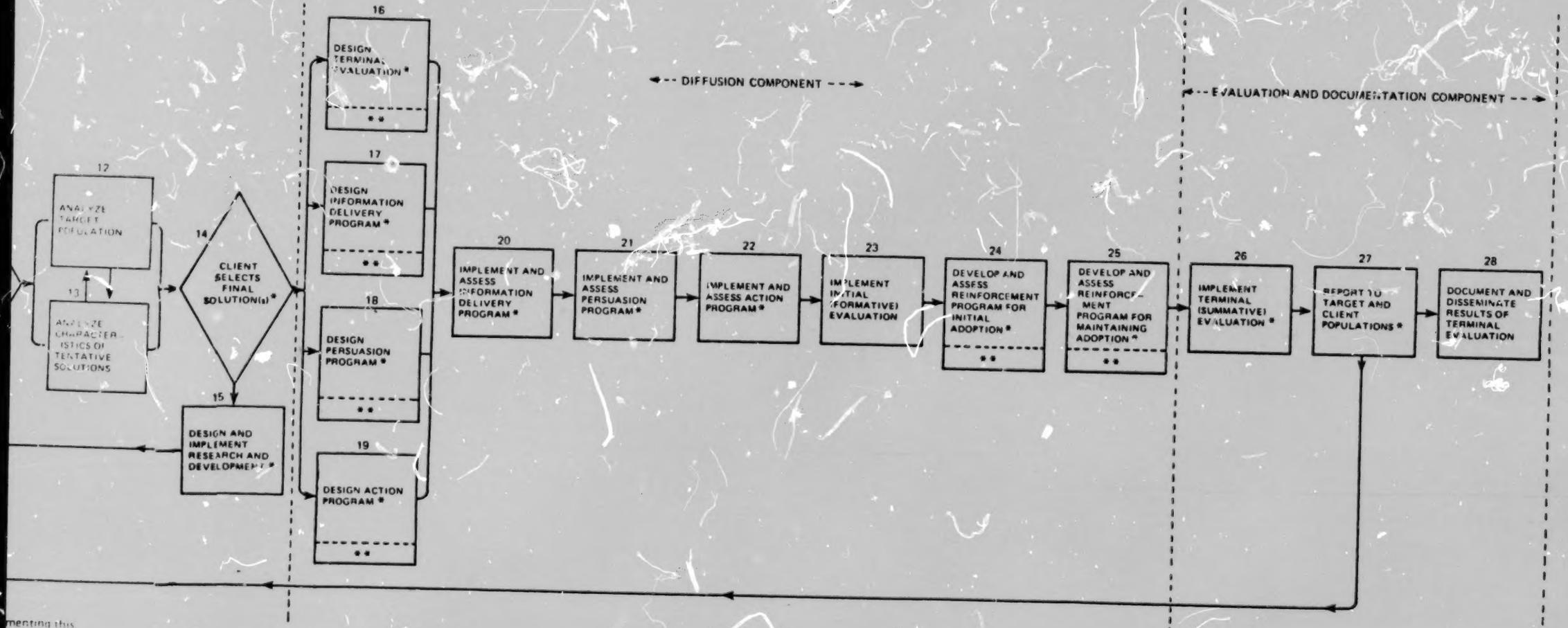

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The agent's purpose in this first element of the FADS model is to establish a good relationship with the client and to obtain from him a brief description of his initial, perceived present status and ideal status.

1.1. Identifying the client's role in the organization is prerequisite to understanding his perception of the problem, identifying possible solutions to that problem, and assessing his potential functions in the assessment/diffusion process (Magisos, 1971, Twelker, Note 22).

1.2 The change agent's success depends largely upon his ability to establish and maintain rapport with the client throughout the assessment/diffusion process (Argyris, 1961; Hall, Note 11).

1.2.1. It will be easier for the agent to establish rapport with the client if the client is the one who initiates the meeting rather than the agent (Hull, 1974).

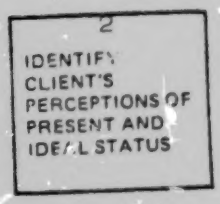
1.2.2. The client's first impression of the agent will be favorable to the extent that he perceives the agent as similar to himself in dress, attitudes, and beliefs (Alinsky, 1971; McCroskey, Larson, & Knapp, 1971).

1.2.3. One way for the agent to make a good impression on the client is to allow the client to talk and express himself as much as he appears to have a need to do so (Richardson, Dohrenwed, & Klein, 1965).

1.3. The agent should not accept employment or a commision from friends, relatives, or long-time colleagues (The American School Board Journal, 1974 a).

1.4. The agent should ask the client for a brief written statement of present status, which he can study before they meet again (Foley, 1970).

1.5. The agent should terminate the interview as soon as he notes a lack of interest in the client (Richardson, Dohrenwend, & Klein, 1965).



The agent's purpose in this element is to meet with a few designated representatives of the client group and obtain a clearer understanding of their perceived present status and ideal status.

2.1. The agent should continue to develop rapport with the client on this and subsequent meetings (Miller, 1969).

2.1.2. The client will be more willing to accept the agent's advice if he perceives that the agent is genuinely concerned about the client's problems (Miller, 1969).

2.2. Rather than meet with all of the client group's members at once, it is best to meet first with a few of their representatives (Havelock, 1973 a).

2.2.1. This meeting will be most successful if it is held at the client's rather than the agent's location (Havelock, 1973 a).

2.3 The discussion about the client's perceived present status and ideal status should occur before--not after--the agent team conducts its objective inventory and analysis of present and ideal status.

2.4. The client's perception of his present and ideal status will probably reflect basic values (Kaufman, 1972; Pead, Note 18).

2.5. The relationship between the client and the potential target population is a major determinant of the client's perception of the present and ideal status (Klein, Note 15; Sweigert, Note 20).

2.6. When the client identifies several problems, they should be rank-ordered in importance (Foley, 1970; Heichberger, 1973; Mangione, 1970).

2.7. The agent should help the client describe the goals of an ideal status as clearly as possible (The American School Board Journal, 1974 a; Becker, 1973 b; Havelock, 1973 a; Heichberger, 1974; Oppenheimer, 1970; Reckinger, 1973).

2.8. The agent should determine the client's reasons for wanting to initiate change and agree to help him only if they are legitimate ones (Blanzy, 1974; Heichberger, 1974; House, 1971; Hug, 1969).

2.8.1. The agent's understanding of the client's perceived ideal status will be facilitated if the agent can determine why the client thinks the ideal status is important (Batelle Memorial Institute, 1973; Eastmond, 1971 b; Kaufman, 1972; Oklahoma State Department of Education, 1973).

2.9. The agent should not agree to help the client unless he possesses the skills needed to work on the client's problem (The American School Board Journal, 1974 c).

2.10. The agent should solicit a commitment from the client to design a plan for financially supporting the needs assessment/diffusion process (Hull, 1974; Mahan, 1972 a; Shane, 1973).

2.10.1. The client may want to contract with the agent to write a grant proposal which would subsidize the assessment/diffusion process (Ruff, 1974).

2.11. The agent should give the client a brief overview of the entire FADS model, explaining in some detail elements 3 through 6. The agent should also carefully distinguish between what he can and cannot do for the client (Lippitt, 1961).

2.11.1. The agent should forewarn the client that a successful assessment/diffusion effort is time consuming (Charters, 1972).

2.12. The agent/client should agree in writing upon definitions of mutual and differential responsibility in the tasks to be completed during the elements 3 through 6 (Cooper, 1971).

2.12.1. To preclude misunderstandings which might arise about expectations between client and agent, these expectations should be written into a contract, and signed by designated representatives from both the client and agent groups (Mahan, 1972 a).

2.13. Before terminating this meeting, the agent/client should agree upon the place, time, and agenda of their next meeting (Anderson, 1974).

2.13.1. For maximum productivity, agent/client meetings should not be longer than three hours, and should be interspersed with some informal, non-directed activities (Cooper, 1971).

2.14. During the interim between this and the next meeting, members of the agent group should meet together to evaluate the results of both the product and process of the previous meeting.

2.14.1. During this interim, the agent team should conduct a preliminary "force field analysis", which would allow them to identify structural forces working for and against change (Svoboda & & Wolfe, 1972).

2..2. During this interim, the agent team should construct an organizational chart, identifying those persons working for and against change (Havelock, 1973 a).

3
ACHIEVE CONSENSUS BY CLIENT GROUP ON PRESENT AND IDEAL STATUS

The agent's purpose in this element is to clarify his understanding of the client group's perceptions of present and ideal status. In doing so he will want to determine whether or not the client group's perceptions are consistent with those interpretations already given to him by the client group's designated representatives.

3.1. Consensus about the ideal status is prerequisite to finding a solution which accuragely reflects the goals of the entire organization and to finding support for the changes required to attain that ideal status (Atherton, 1970; Educational Commission of the States, 1973; Banathy, Note 3; Kaufman, 1969; Sweigert, Note 21).

3.1.1. Occasionally, the client group's representatives will not have described the ideal status desired by the client group accurately (Doak, 1970; Espositio, 1973; Nath, 1968; Rittenhouse, 1971).

3.2. The assessment and diffusion processes depend upon adequate representation of all constituencies within the target population during this and all subsequent elements in the FADS model (Adams, 1974; Anderson, 1974; Argyris, 1965; Atherton, 1970; Giacquinta & Kerlinger, 1973; Gross & Watt, 1969; Hansen, 1974; Heichberger, 1973; Hersh & Yarger, 1972; Likert, 1967; Wood, 1973).

3.2.1. Teachers should be involved for input during this and all appropriate subsequent elements of the FADS model (Bailey, 1971; Buchan, 1971; Cirrincione, 1974; Dewey, 1966; Lippitt, 1967; Ohme, 1972).

3.2.2. Students should be involved for input during this and all appropriate, subsequent elements of the FADS model (Dickenson & Foster, 1970; Hansen, 1974; Hern, 1970; Lagenbach & Hinkemeyer, 1974; Ohme, 1972; Howard, 1974).

3.2.3. The larger community (e.g., parents) should be involved for input during this and all appropriate, subsequent elements of the FADS model (Lighthall, 1973; Pulleyblank, 1971; Worner, 1974).

3.3. It is probably both unrealistic and unnecessary to expect to obtain consensus from all parties involved on all key decisions (Hull, 1974).

3.4. It may also be impractical to meet with all participants at the same time. Thus, some means of ensuring broad based representation should be implemented, e.g., advisory groups (McCracken, 1973; Williams, 1974) and surveys (Hetzel & Barnard, 1973; Ohme, 1973).

3.5. While the client group reaches concensus about the present and ideal status the agent must be careful not to ignore subgroups within the client group (Lippitt, 1961; Wood, 1973).

3.6. While the client group works toward concenses, the agent must not allow one subgroup to dominate the discussion (Glidewell, 1961).

3.7. The agent should also resist administrators' efforts to dominate interaction and convince them of the necessity for broad-based participation in decision making (Hetzel & Barnard, 1970; Hinkemeyer, 1971; Lighthall, 1973; Rittenhouse, 1971).

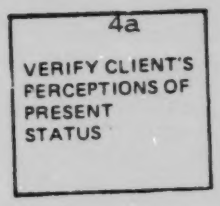
3.8. Efforts to gain concensus will inevitably result in some conflict among various subgroups (Hull, 1974).

3.8.1. When conflicts arise, the agent should state the problem in objective terms, which do not favor either of the conflicting parties, and solicit a commitment from each to resolve the conflict on the basis of empirical data obtained in subsequent elements of the FADS model (Charters, 1972).

3.9. Depending on the size of the client group, the agent may have to hold more than one meeting before adequate consensus is obtained on present and ideal status.

3.10. Before terminating the meeting, agent/client should agree on the place, time and agenda of the next meeting (Anderson, 1974).

3.11. During the interim between ending this and beginning the next element in the FADS model, the agent team should meet together to discuss and evaluate the results of products and processes of this element of the FADS model.

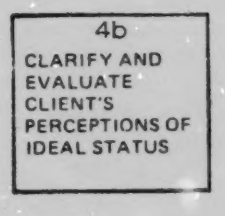


This element requires the agent to conduct a cursory analysis of the client's present status. If the agent's cursory analysis is compatible with the client's perceptions, the agent procedes directly to deeper analysis in element 5a. If the agent's cursory analysis conflicts with the client's perception of the present status, the agent advises the client of the differences; whereupon, they jointly reconcile their differences and draft a mutually acceptable revised statement of the client's present status.

4a.1. The client group's perceptions of the present status must be validated empirically in order to differentiate between real needs and other considerations which may only be symptoms of real needs (Eastmond, 1971 a; Hearn, 1972).

4a.1.1. The psychological process of selective exposure, attention, perception and recall may cause the client to perceive problems that in fact do not exist or fail to recognize those that do exist (Cooper & Jahoda, 1947; Heichberger, 1974; Wood, 1973; Arnold & McCroskey, Note 2).

4a.1. Data obtained for this analysis may also be used to resolve conflicts which surfaced during element 3 but which have not been resolved satisfactorily yet.



The agent's primary task during this element is to help the client describe and commit himself to realistic goals. These realistic goals by definition will be much narrower in scope and more precise in their descriptions than the general goals previously discussed in elements 2 and 3.

4b.1. Failure to work toward realistic goals will probably result in an unsuccessful change effort (Anderson, 1974; Nadler, 1974).

4b.1.1. Unsuccessful change efforts have two deleterious consequences: (1) they are a needless waste of time, money, materials and, most important, human effort; (2) they predispose the client and target population groups to avoid attempting change efforts in the future.

4b.2. Goals can be evaluated on a realistic-unrealistic continuum according to their number, magnitude, specificity, and measurability.

4b.2.1. Realistic goals are few in number (Atherton, 1970; Cawelti, 1974).

4b.2.2. Realistic goals aim toward affecting an optimal degree of change (Gorman, 1972; Lighthall, 1973; Mahan, 1972 a; Sarason, 1972).

4b.2.3. Realistic goals are stated in specific terms (Hamilton, 1970).

4b.2.4. Realistic goals are stated as measurable objectives (Heichberger, 1973; Rittenhouse, 1971; Sybouts, 1973).

4b.3. In the case of educational goals, they should reflect what the community wants for its children (Cawelti, 1974; Lighthall, 1973).

4b.4. Educational goals should be compatible with existing curriculum guidelines (Sybouts, 1973).

4b.4.1. If the educational goals are not compatible with exisitng curriculum guidelines, either the goals, the guidelines, or both must be modified.

4b.4.1.1. In modifying curriculum guidelines, input should be obtained from all persons who will be affected seriously by the curriculum changes, including teachers, administrators, students, and parents (MacBeth, 1974; Whitehead, 1957).

4b.5. The goals should be expressed in written form and circulated among all persons who stand to loose or gain from efforts to work toward those objectives (Wood, 1973).

4b.6. A clear understanding of and willingness to endorse these objectives is prerequisite to successful implementation of the remaining steps in the FADS model (Hetzel & Barnard, 1970; Hersh & Yarger, 1970; Mahan, 1972 a; Pulleyblank, 1971).

4b.7. While the primary emphasis in this element has been the development of short-range, realistic objectives, it will be advantageous to develop a few long-range goals as well. Long-range goals give the client and target population something to work toward once the short-range goals have been achieved (Wood, 1973; Worner, 1974).

This element calls for the agent to conduct an in-depth analysis of the client's present status. If the agent's findings are compatible with the client's perceptions of the present status, the agent proceeds directly to element 6. If the agent's findings conflict with the client's perception of the present status, then the agent advises the client of the differences; whereupon, they work together to reconcile their differences and draft a mutually acceptable revised statement of the client's present status. Note that the function of this element is similar in most respects to that of element 4a. They differ in the degree of effort put forth to conduct a cursory (element 4a) as opposed to in-depth (element 5a) analysis.

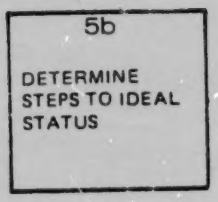
5a.1. A set of procedures for acquiring information should be developed to insure maximum effectiveness and efficiency (Havelock, 1973 a).

5a.2. Members from both the target population and client group should be involved in the actual data collection and analysis (Hetzel & Barnard, 1973; Johnson, 1973; Whitehead, 1957, Wood, 1973).

5a.3. Hard data are prefereable to anecdotal information in evaluating the accuracy of the client's perceived present status (Worthen & Sanders, 1973).

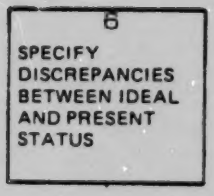
5a.4. Whenever possible, unobtrusive measures should be used to evaluate present status (Havelock, 1973 a; Webb, Campbell, Schwartz, & Seechrest, 1970).

5a.5. Care should be taken to avoid over-diagnosis of the present status (Havelock, 1973 a).



The purpose of this element in the FADS model is to identify and describe the intermediary objectives which must be met in progressing toward the ideal status. Obtaining a clear understanding of the number and complexity of these intermediary objectives will help the agent/client to identify discrepancies between present and ideal status, and also to identify possible solutions.

5b.1. Formulating criteria for the agent/client to use to determine when the ideal status has been realized facilitiates the task of identifying intermediate objectives (Hersh & Yarger, 1972; Barber, Note 4).



The purpose of this element in the FADS model is to identify and describe the descrepancies between the present and ideal status.

6.1. It is easier to understand the nature of a client's problem when it is expressed in the form of discrepancies between the present and the ideal states of affairs (Kuuskraa, 1971; Woodbury, Note 23).

6.2. Expressing problems in the form of discrepancies between the present and the ideal states also suggests what needs to be done to reach the ideal status (Idaho State Department of Education, 1971; Stufflebeam, 1971).

6.3. The agent should give the client a detailed review of elements 7 through 11.

6.3.1. The agent/client should agree in writing upon definitions of mutual and unique responsibilities in the tasks to be carried out during elements 7 through 11 (Cooper, 1971).

6.3.1.1. To preclude misunderstandings which might arise about expectations between client and agent, these expectations should be written into a contract and signed by designated representatives from both the client and agent groups (Mahan, 1972 a)

The purpose of this element is to classify the discrepancies between present and ideal status into three categories of varying importance: (1) highly, (2) moderately, and (3) slightly important.

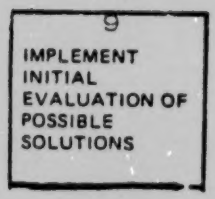
7.1. An initial classification of discrepancies by the client, client group, and target population at this early stage in the FADS model, makes it easier to select solutions during later stages of the FADS model, i.e., elements 11 & 14 (Copeland & Higgins, 1974).

The agent's task in this element is to make a list of solutions to the problem-discrepancies previously classified in element 7. In all probability, the agent will be able to locate a wide variety of solutions appropriate for each of the problem-discrepancies under consideration. His task, then, is to locate and list them, not create them (Hull, 1974).

8.1. The agent will have access to a wide range of sources from which to obtain possible solutions, including compendiums and specialized encyclopedias; textbooks, literature review articles, and research reports; federal, state, and local educational agencies, and sales representatives from companies specializing in the manufacture and distribution of various different curriculum products.

8.2. Brain-storming among agent and client groups can be used to broaden the range of possible solutions (Osborn, 1953).

8.3. The greater the number of possible solutions, the more effectively the client can select workable solutions (Havelock, 1973 a).



In this element the agent/client jointly conduct an initial, cursory evaluation of all the solutions previously identified in element 8. It is important to note that none of these solutions are discarded as a result of this cursory evaluation. Decisions to eliminate some solutions from further consideration are held in abeyance until the client is ready to make his tentative selections in element 11.

9.1. Success of the assessment/diffusion process depends partly upon how well the client learns to evaluate solutions (Alers-Montavlo, 1957; Sasaki, 1956).

9.1.1. It is important to involve members of the target population in this and all subsequent evaluation-decision elements, i.e., elements 10, 11, & 14 (Van Wyck, 1971).

9.2. Although different criteria may be established to evaluate different solutions, three criteria should be applied to all solutions: the cost/benefit ratio, effectiveness, and ease of implementation (Kaufman, 1972; Kruskraa, 1971; Klein, Note 15; Sweigert, Note 20).

9.2.1. Ideally, it should not cost any more to implement the innovation than would ordinarily be available during the years the innovation is to be implemented (Ohme, 1972).

In this element, the agent/client prioritize all possible solutions. This is the second step taken in evaluating the solutions obtained in element 8. As in element 9, no possible solutions are discarded as a result of the prioritization process. Decisions to discard certain solutions are held in abeyance until the client makes his first tentative selections in element 11.

10.1. The agent and client jointly develop explicit criteria for prioritizing solutions (Havelock, 1973 a; Barber & Benson, Note 4).

10.2. The rate of future implementation of the solution eventually decided upon will be positively correlated with the number of client "legitimizers" (e.g., administrators) who were actively involved in this and other evaluation-decision elements, i.e., elements 9, 11, and 14 (House, Kerins, & Steele, 1972; Richberg & Carswell, 1974; Rosenthal & Crain, 1965).

10.3. Concensus about the prioritized solutions by client, agent, and target population groups increases the likelihood that these solutions will be implemented (Hearn, 1972; Hersh and Yarger, 1972; Kaufman, 1972; MacBeth, 1974; Sweigert, Note 20).

The assumptions and propositions for this element are the same as those in element 14. The difference between them is the degree of finality of the decisions. The objective of this element is to produce tentative solutions; element 14 produces final solutions. A tentative selection permits second thoughts before the final selection is made.

11.1. The client should use all available data to select solutions (Flanagan, 1970; Havelock, 1973 a; Stufflebeam, 1971).

11.2. It is important to involve opinion leaders in this and other evaluation-decision elements. Opinion leaders may or may not also be the formal legitimizers (e.g., administrators) of the client and target population groups (Chandler, 1962; Dahl, 1961).

11.3. The client and target population groups' satisfaction with and acceptance of the final solution is positively correlated with how much such member feels he participated in selecting the solution (Bennett, 1953; Coch & French, 1948; Davis, 1965; French, et al., 1958; French, Israel, & As, 1960; Giffin & Erlich, 1963; Hamblin, Miller, & Wiggins, 1961; Levine & Butler, 1952; Lewin, 1943; Morse & Reimer, 1956; Radke & Klisurich, 1947; Wallach & Kogan, 1965).

11.4. The agent should give the client a detailed review of elements 12 through 14.

11.4.1. The agent/client should agree in writing upon definitions of mutual and unique responsibilities in the tasks to be carried out during these elements (Cooper, 1971).

11.3.1.1. To preclude misunderstandings which might arise about expectations between client and agent, these expectations should be written into a contract, and signed by designated representatives from both the client and agent groups (Mahan, 1972 a).

The agent's task in this element is to analyze the target population in order to ascertain its potential for successfully implementing and maintaining an innovation. The knowledge obtained from this analysis will have two important uses. The first is to help the client select a solution maximally compatible with the target population's characteristics (element 14), which should increase the probability of diffusing the innovation successfully (Flanagan, 1970). Second, this information will also be used in the design and development of information, persuasion, and action programs (elements 17, 18, & 19), all of which are crucial to the success of the diffusion process (Becker, 1973 a; Becker, 1973 b; Flanagan, 1970; Mahan, 1972 a; Sarason, 1972).

12.1. Unless the organizational climate is conducive to change, there is little possibility of diffusing innovations through the system (Doak, 1970; Goodlad, 1972).

12.1.1. The degree of "openness" of the system is positively correlated with the probability of diffusing an innovation successfully (Bennis & Slater, 1968; Chester & Fox, 1967; Eyler, 1972; Fordyce & Weil, 1971; Granito, 1972; Gross & Herriott, 1965; Halpin, 1967; Heichberger, 1974; Hilfiker, 1970; Howard, 1974; Hughes, 1968; Johnson, 1969, Lake, Ritvo, & O'Brien, 1969; Luke & Mial, 1971; Mangione, 1970; Stern, 1950; Havelock, Note 12).

12.1.1. The degree of "congruence" between individual and organizational goals is positively correlated with the probability of successfully diffusing an innovation (Fordyce & Weil, 1971; Heichberger, 1974; Howard, 1974; Luke & Mial, 1971; Oppenheimer, 1970; Spuck, 1974).

12.1.3. The degree to which members perceive that the organization is "sensitive to their personal needs" is positively correlated with the probability of diffusing an innovation successfully (Fordyce & Weil, 1971; Luke & Mial, 1971).

12.1.4. The degree to which members typically collaborate with one another in working toward organizational goals is positively correlated with the probability of diffusing an innovation successfully (Fordyce & Weil, 1971).

12.1.4.1. Innovative climates are characterized by a healthy disposition toward conflict and competition. Conflict and competition are perceived as necessary events in order to formulate clear, meaningful objectives and to devise effective strategies for achieving those objectives (Fordyce & Weil, 1971).

12.1.5. The degree to which members are preoccupied with status is negatively correlated with the probability of diffusing an innovation successfully (Fordyce & Weil, 1971).

12.1.6. The degree to which members are genuinely tolerant of nonconforming behavior is positively correlated with the probability of diffusing an innovation successfully.

12.1.7. The degree to which the organizational structure is "easily and readily modified to meet needs as they arise" is positively correlated with the probability of diffusing an innovation successfully (Fordyce & Weil, 1971).

12.1.8. The degree of energy and enthusiasm which the organization expends in meeting its goals is positively correlated with the probability of diffusing an innovation successfully (Johnson, 1969).

12.1.9. The degree to which members are willing to engage in risk taking behaviors in order to meet organizational goals is positively correlated with the probability of diffusing an innovation successfully (Fordyce & Weil, 1971).

12.1.10. The degree to which the organization endorses modern as opposed to traditional norms is positively correlated with the probability of diffusing an innovation successfully (Goodlad, 1971; Hinkemeyer, 1971; Rogers & Svenning, 1969).

12.1.10.1. The degree to which the organization endorses governmental intervention for social progress is positively correlated with the probability of diffusing an innovation successfully (Hearn, 1972).

12.1.11. The degree to which members perceive the organization as moderately ordered and stable is positively correlated with the probability of diffusing an innovation successfully (Fordyce & Weil, 1971).

12.2. Effective leadership is prerequisite to successful diffusion.

12.2.1. Innovative leaders are more openminded than non-innovative leaders (Hearn, 1970; Johnson, 1969).

12.2.2. Innovative leaders are younger than non-innovative leaders (Hearn, 1970; House, Kerins, & Steele, 1972).

12.2.3. Innovative leaders are more cosmopolite than non-innovative leaders (Hearn, 1970).

12.2.4. Innovative leaders are more likely to have been brought in from outside the organization than promoted from within it (Hearn, 1970).

12.2.5. Innovative leaders encourage more "down-up" communication than non-innovative leaders (Johnson, 1969; Oppenheimer, 1970).

12.2.6. Innovative leaders are more outgoing than non-innovative leaders (Johnson, 1969).

12.2.7. Innovative leaders do more risk taking than non-innovative leaders (Hearn, 1970; Hug, 1969; Johnson, 1969).

12.3. The change agent must identify certain key individuals within the target population and determine their potential impact on the diffusion process.

12.3.1. The diffusion process will be successful to the extent that "early knowers of an innovation" are identified and utilized (Rogers and Shoemaker, 1971). By definition, they know about innovations independently and may know about plans to adopt an innovation before it is presented in the information and persuasion elements (elements 20 & 21). Their support is important. But in addition, they can provide information about the most effective communication networks to use for the information delivery system. In terms of the FADS model, these early knowers, if not identified and consulted, could function as a short circuit from the first contact between agent and client to the information delivery system, a leap of about 19 elements.

12.3.1.1. Early knowers have discernible characteristics which distinguish them from later knowers. Rogers and Shoemaker (1971) found a preponderance of evidence to suggest that, when compared to later knowers, early knowers:

a. have more education and higher social status.
b. are more cosmopolite.
c. have greater exposure to mass media, change agents, and interpersonal channels of communication.

12.2.1. The diffusion process will be successful to the extent that the agent identifies and enlists the support of gatekeepers within the target population (Rogers and Shoemaker, 1971). They can influence the type and amount of information about the innovation that is disseminated to the target population. Since gatekeepers' functions are frequently performed by opinion leaders (Havelock, 1973 a), it seems that the change agent should identify and obtain the cooperation of those who serve as both opinion leaders and gatekeepers.

12.3.3. The change agent must also identify and get the cooperation of opinion leaders in the target population. Change agents have some characteristics in common with early adopters, but they are not likely to be the same person (Rogers and Shoemaker, 1971). The opinion leader's attitude toward the innovation will ripple outward through the followers, gaining numerical magnitude. His support is a sine qua non to successful diffusion.

12.3.3.1. Opinion leaders have discernible characteristics which distinguish them from their followers. Rogers and Shoemaker (1971) found a preponderance of evidence

to support the following generalizations. When compared with their followers, opinion leaders:

a. have higher social status.
b. have greater social participation and contact with internal change agents.
c. have greater exposure to professional publications.
d. are more cosmopolite.
e. are more innovative.

12.3.3.2. Opinion leadership is more polymorphic when the norms of a system are more traditional (Attah, 1968; Sengupta, 1968). Polymorphic opinion leaders are sought for guidance in several areas of concern; monomorphic leaders are sought for guidance in one area of concern.

12.3.4. The agent should identify and solicit the support of early adopters of an innovation (Rogers and Shoemaker, 1971). An early adopter is willing to try an innovation before opinion leaders sanction it. They serve a valuable function by making the innovation visible.

12.3.4.1. Early adopters have discernible characteristics which distinguish them from later adopters. In their review of the literature, Rogers and Shoemaker (1971) find substantial evidence to support the following (and some additional) generalizations. When compared with later adopters, early adopters:

a. have more favorable attitudes toward change, risk, and science.
b. are more intelligent, rational and emphathetic, and less dogmatic.
c. have greater upward social mobility, higher social status, and more advanced degrees and graduate hours.
d. have more achievement, motivation, and aspiration.
e. have more social participation, exposure to interpersonal communication channels and contact with internal change agents.
f. participate more actively in professional organizations, and seek and gain more information about innovations.
g. have a higher degree of opinion leadership.
h. are more cosmopolite (Hearn, 1972), as opposed to local or provincial.

12.3.4.2. Recent research by Rafky (1972) also suggests that early adopters within an educational setting also tend to be more concerned about their students' welfare than later adopters.

12.3.5. The diffusion process will be successful to the extent that the change agent is able to identify and enlist the support of "resisters" within the population. A resister is committed to the status quo and resists attempts to change it.

12.4. There are several historical, fiscal, normative, and geographic factors which work from within or upon the system, affecting the likelihood of successful diffusion.

12.4.1. The greater the degree of success with previous innovation attempts, the more quickly and easily the system will adopt future innovations (Hearn, 1970; Sturges & Mrdjenovich, 1973; Trump, 1974).

12.4.2. The degree of "capacity" of a system is positively correlated with the degree of success with which an innovation is diffused in the system (Havelock, Note 12). According to Havelock, capacity is a summary term designating the linkage of the highly intercorrelated variables of wealth, power, status, education, intelligence, and size and sophistication of operation.

12.4.3. Schools with higher per-pupil expenditures tend to adopt more innovations than schools with lower per-pupil expenditures (Havelock, 1973 b; Hearn, 1970).

12.4.4. Schools having larger enrollments tend to adopt more innovations than schools with smaller enrollments (Havelock, 1973 b; Kohl, 1969).

12.4.5. Schools that divise a comprehensive plan for subsidizing the cost of the diffusion process are more likely to experience success with it than schools that do not (Foley, 1970; Heichberger, 1974; Sarason, 1972; Trump, 1974).

12.4.5.1. Schools contributing significantly to the cost of the diffusion process are more likely to experience success with it than schools that do not (Hearn, 1970).

12.4.6. A well functioning, system-wide, communication network is prerequisite to successful diffusion (Reckinger, 1973).

12.4.7. The rate of adoption of an innovation is faster when power is concentrated in the system (Gamson, 1968; Hawley, 1962; Rosenthal & Crain, 1968).

12.4.8. Teachers and administrators working in Southern schools are more optimistic about attempts to diffuse educational innovations than educators in other regions of the country (Morrissett, 1974).

12.5. It is important to analyze the larger community which the target population serves, because reluctance of large numbers of parents and other community persons to support educational change makes change difficult (Granito, 1972).

12.5.1. The agent should identify and solicit the help of community persons willing to help implement the innovation (Williams, 1974).

12.5.2. Communities likely to support educational innovations are characterized by definite educational, economic and sociological characteristics.

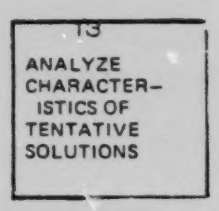
12.5.2.1. Innovations are more likely to gain acceptance in communities where the income and educational levels of the parents are high (Hearn, 1970; Hearn, 1972).

12.5.2.2. Innovations are more likely to gain acceptance in communities having a higher percentage of students going to college (Hearn, 1970).

12.5.2.3. Innovations are more likely to gain acceptance in "homogenous" as opposed to "heterogenous" communities (Hearn, 1972). A homogenous community is one whose members subscribe to many of the same values, norms, and traditions.

12.6. Analysis of the target population will be made more useful by employing standardized diagnostic instruments (Hilfiker, 1970). The use of standardized instruments yields data that are comparable to other target populations' assessments.

12.7. The agent should use the information obtained in this element to further expand upon the force-field analysis and organizational chart initially developed in element 2.



The agent performs two important tasks in this element. The first is to analyze the tentative solutions according to the "real" costs of implementation and maintenance. This includes such considerations as initial cash outlays and number of personnel needed to implement and maintain the innovation. The agent's second task is to evaluate the tentative solutions according to their "perceived" characteristics. This includes consideration of such factors as the amount of time and energy potential adopters perceive they would have to put forth in learning how to implement and maintain the innovation.

13.1. Every effort should be made to obtain empirical data to evaluate the tentative solutions (Atherton, 1970; Havelock, 1973 a).

13.2. The agent should be objective when gathering data. Specifically, he should not gather data that would unfairly bias the client toward evaluating certain solutions favorably over others (Cronbach & Suppes, 1969; Tukey, 1960; Merton, 1963).

13.3. MacBeth (1974, p. 42) suggests that the following detailed information should be obtained when evaluating "hardware" innovations:

a. a complete inventory of each tentative solution, including filmstrips, tapes, films, records, charts, manipulative devices, and so on.
b. number and cost of all materials needing yearly replacement.
c. damage and durability estimates.
d. number of students served by each solution.
e. list of needed supplementary materials.
f. personnel needed to implement and maintain each solution.
g. initial cost of implementation per child.
h. sustained cost per child
i. storage and portability factors.
j. tests and other evaluative data supplied by manufacturers.
k. reading level of accompanying reading materials.
l. extent of inservice and preservice training programs.

13.4. The agent should contact sponsors of purchasable solutions to obtain "costs of installation and maintenance, performance specifications, and claims concerning benefits (short-term and long-term), supplementary materials required and provided (e.g., manuals), limiting conditions, guarantees of quality and reliability, and problems that might be encountered in terminating the innovation" (Havelock, 1973 a, p. 92; Richburg & Carswell, 1974).

13.5. The agent should contact other agents and school systems that have previously implemented the solutions under consideration and obtain the benefit of their experience (Havelock, 1973 a; Paisley, 1969).

13.5.1. Rittenhouse (1971) cautions that obtaining detailed information from other school systems is sometimes a difficult task.

13.5.2. When possible, the agent should obtain detailed information from schools that have implemented a tentative solution by an on-site visit and personal observation of the innovation in operation (Johnson, 1973).

13.6. The perceived characteristics of innovations greatly influence the probability of their diffusion (Rogers & Shoemake, 1971; Zaltman, 1971).

13.6.1. The "observability" of an innovation is positively correlated with its rate of adoption (Havens & Rogers, 1961; Mansfield, 1961; Rogers, 1962). Observability is the extent to which the innovation's effects are clearly observable to the potential adopter and his peers.

13.6.1.1. Observability is more important at the "interest" stage of the diffusion process than at any of the other stages (Kohl, 1969).

13.6.2. The more ameanable the innovation is to demonstration, the more likely it is to be adopted (Zaltman, 1971).

13.6.3. The "simplicity" of an innovation is positively correlated with its rate of adoption (Blanzy, 1974; Erasmus, 1962; Kivlin & Fliegel, 1967; Fliegel & Kivlin, Note 9). Simplicity is the extent to which an innovation is easy to understand and use.

13.6.3.2. The "pervasiveness" of an innovation is negatively correlated with its rate of adoption (Barnett, 1953). Pervasiveness is the extent to which implementing the innovation causes other changes in the potential adopter's behavior.

13.6.4. The "relative advantage" of an innovation is positively correlated with its rate of adoption (Erasmus, 1952; Griliches, 1960; Helsen, 1972; Kivlin, 1960; Rafky, 1972; Toussaint & Stone, 1960; Willower, 1970; Feliciano, Note 8; Petrini, Note 19). Relative advantage is the extent to which the advantages of the new behavior exceed those produced by the behavior it is intended to replace.

13.6.4.1. Perceived relative advantage is more influential at the adoption stage of the diffusion process than at any of the other stages (Kohl, 1969).

13.6.4.2. The number and magnitude of an innovation's "critical attributes" is positively correlated with its rate of adoption. According to Zaltman (1971), a critical attribute is something that an innovation can do that no other innovations can do.

13.6.5. The "practicality" of an innovation is positively correlated with its frequency and rate of adoption (Wolf and Fiorino, 1973). Practicality is the extent to which an innovation can effectively meet its intended objectives, but without drawing inordinately upon the resources necessary to implement and maintain it.

13.6.6. An innovation's rate of adoption is positively correlated with the degree to which its use increases the user's autonomy and initiative (Woods, 1967).

13.6.7. The similarity of an innovation to the practice it is replacing is curvilinearly related to its rate, frequency, and permanence of adoption (Leithwood & Russell, 1973; Orlosky & Smith, 1972).

13.6.8. The "compatibility" of an innovation is positively correlated with its rate of adoption (Brandner & Kearl, 1964; Helsel, 1972; Hull, 1974; Mahan, 1972 a; Mead, 1955; Oppenheimer, 1970; Orlosky & Smith, 1972; Suttles, 1951). Compatibility is the extent to which the practice of the innovation is compatible with the user's social norms and past experiences.

13.6.8.1. Compatibility is more influential at the adoption stage of the diffusion process than at any of the other stages (Kohl, 1969).

13.6.9. The "social cost" of an innovation is negatively correlated with its rate of adoption (Fliegel, Kivlin, & Sekhon, 1968). Social cost is the extent of adverse social criticism received directly as a result of adopting an innovation (e.g., ridicule, expulsion from reference group, etc.).

13.6.9.1. The adoption of an innovation is negatively correlated with the extent to which it conflicts with taboos or rituals in the potential adopter's system (Watson, 1969).

13.6.10. The adoption of an innovation is negatively correlated with the extent to which practicing the innvation reduces the potential adopter's prestige and power (Orlosky & Smith, 1972; Rhodes, 1969; Shane, 1973).

13.6.11. The "divisibility" of an innovation is positively correlated with its rate of adoption (House, Kerins, & Steele, 1972; Orlosky & Smith, 1972). Divisibility is the extent to which some aspects of the innovation can be adopted without adopting others.

13.6.12. The "trialability" of an innovation is positively correlated with its rate of adoption (Fliegel & Kivlin, 1966; Helsel, 1972; Polgar, Dumphy, & Cox, 1963). Trialability is the extent to which the innovation can be first implemented on a limited basis.

13.6.12.1. Perceived trialability is more influential at the interest stage of the diffusion process than at any of the other stages (Kohl, 1969).

13.6.13. The "reversibility" of an innovation is positively correlated with its rate of adoption (Taylor, 1970). Reversibility is the extent to which the status quo can be reimplemented if the adopter is dissatisfied with the innovation.

13.6.14. The likelihood of adopting an innovation permanently is negatively correlated with the number of people required to undergo significant behavior changes (Orlosky & Smith, 1972; Svoboda & Wolfe, 1974).

In this element, the client makes a final selection of the solution to be implemented in the diffusion process. He has available a considerable amount of information on which to base this decision. The information previously obtained in elements 4a, 12, and 13 are particularly helpful in this regard.

Given that the client is able to select a solution from among the one's available to him, he will proceed directly from this element to elements 16 through 19. These are the preimplementation elements during which the diffusion process is carefully planned out. If the client is not able to select a solution, he may ask the agent to conduct a research and development program (element 15) in order to create a solution uniquely appropriate for the target population.

14.1. The client should implement the technique of writing "future histories" to aid in making a difficult choice between two or more attractive solutions (Chase & Clark, 1974). The future histories' technique consists of writing a brief future history for each attractive solution, as the client imagines each would be implemented. This helps the client to identify and compare the relative strengths and weaknesses of each solution.

14.2. Here, as elsewhere in the FADS model, it is important to obtain broad based participation in decision making (Orlosky & Smith, 1372).

14.3. It is particularly important to avoid administrative mandates, as they incur ill will among potential adopters (Taylor, 1971).

14.4. Assuming that the client is able to decide upon a final solution from among the possible ones already available to him, the agent should review elements 16 through 19 in detail.

14.5. If the client is unable to decide upon a final solution, he may contract with the agent to create one which would better meet his needs than those already available. In this event, the agent should review in detail element 15.

14.5.1. The agent/client should agree upon the operational definitions of unique and mutual responsibilities for the tasks to be carried out during this element.

14.5.2. To preclude possible misunderstandings, the agent and client should write these expectations into a contract that is signed by designated representatives from each group.

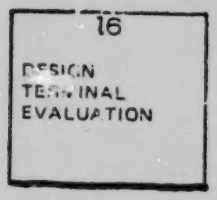
As previously discussed in element 14, the task in this element is to design and develop a solution uniquely suited to meet the client's needs.

15.1. The agent is limited only by his imagination in the number of different designs and procedures he can use in conducting research (McConnel, 1967; Sherwin & Isenson, 1966).

15.2. In conducting applied or action research, the agent should be guided by the client's needs rather than his own (Coleman, et al., 1968; Cronbach & Suppes, 1969).

15.3. Research and development products should be field tested before recommending them for widespread use (Foley, 1970; Hull, 1974).

15.4. In conducting applied research, there should be continuous communication between the developer and intended users (Hull, 1974; Wray, 1972).



The tasks in this element are to develop formative and summative evaluation instruments and programs. Formative evaluation allows one to identify problems as they arise in the implementation and diffusion of the innovation, and to resolve these problems before they become major obstacles to change (Havelock, 1973 a). Formative evaluation also is necessary to provide the client with a rational, data-supported basis either for continuing to implement or for terminating the innovation (Flanagan, 1970; Havelock, 1973 a).

Terminal or summative evaluation provides agent/client with a means of determining the success of the overall implementation/diffusion process (Heichberger, 1973; Hetzel & Barnard, 1970; Houska, 1969; Hull, 1974; Parns & Wenger, 1973; Ohme, 1972; Pyatte, 1974; Wagschal, 1974 b). Such evaluations are also important because they provide data-supported reasons for modifying future change efforts (Lata & Papay, 1971) and serve as a means of obtaining much needed psychological closure on the diffusion process (Hetzel & Barnard, 1973).

16.1. Some client will argue against evaluating the implementation/diffusion process, claiming that the innovation has already been evaluated previously. In most instances this will not be true. According to MacBeth (1974), in 1971 there were approximately 200,000 curriculum materials on the market. Of these, less than one percent were tested before being offered for sale to schools.

16.2. To ensure maximum objectivity, effectiveness, and efficiency, the evaluation program should be planned before implementing the innovation (Foley, 1970; Mahan, 1972 a; Sybouts, 1973).

16.2.1. As in other crucial elements of the FADS model, all relevant and interested persons should participate in the design and implementation of the evaluation program (MacBeth, 1974; Williams, 1974; Wood, 1973).

16.2.1.1. One means of facilitating participation is to conduct frequent meetings involving representatives of relevant and interested persons participating in the diffusion process (Mahan, 1972 a).

16.2.1.2. Another means of facilitating participation is to encourage cooperative involvement by all relevant and interested persons in writing interim report. These reports will later serve as valuable documents to support claims of success for the program when appropriate (MacBeth, 1974; Weischadle, 1974).

16.3. Good evaluation programs are time consuming and expensive (Cawelti, 1974).

16.3.1. The evaluation program will be less expensive if the client or target population groups already have an ongoing system for gathering and storing data (Chase & Clark, 1974).

16.3.2. At the very least, there should be a centrally located information file for efficient storage and retrieval of documents and other materials relevant to the evaluation program (Weischadle, 1974).

16.4. The evaluation program can be designed most efficiently and its results used most effectively if it is based on specific, measurable objectives (Foley, 1970; Helwig, 1971; Karns & Wenger, 1973; Pulleyblank, 1971; Sybouts, 1973).

16.4.1. Consensus should be reached by all relevant persons on the measurable goal that will serve as the ultimate criterion of success (Cawelti, 1974).

16.4.1.1. If the agent/client cannot decide upon a specific goal or if it is impossible to reach consensus on one, they should set as a minimum criterion the "no harm criterion" (Wildberger, 1974). The no harm criterion is that the innovation should not worsen the situation it was intended to improve.

16.5 A plethora of techniques and procedures are available for conducting the evaluation program (Gross & Bernstein, 1971; Herlihy, 1974). The agent's role generally should not involve the creation of new instruments and procedures; rather, the agent should concentrate on identifying and modifying those already available.

16.5.1. The agent should seek prior permission from the target population to use novel, non-paper and pencil measures that could interfere with normal classroom processes (Mahan, 1972 a).

16.6 If possible, the evaluation program should make provisions for conducting field experiments, with control and experimental groups, and pre- and postassessment measures (Hull, 1974; Karns & Wenger, 1973; Sybouts, 1973).

16.7 An evaluation program which taps as many sources of input as possible affords the agent and client a broad view of the effectiveness of the diffusion process (Becker, 1973 b; Blanzy, 1974; Karns & Wenger, 1973).

16.7.1. The success of the implementation/diffusion process should be measured primarily in terms of student outcomes (McNeil, 1971; McNeil & Popham, 1973).

16.7.2. An efficient criterion for assessing the adoption of an innovation is the length of time required for a certain percentage of the target population to adopt the innovation (Rogers & Shoemaker, 1971).

16.7.4. The evaluation program should measure the effectiveness and efficiency of procedures used in gaining awareness and acceptance for, implementing, and maintaining the innovation (Lata & Papay, 1971).

16.7.4.1. This information can also be used in modifying the FADS model to make it more effective in future implementation/diffusion efforts.

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17
DESIGN
INFORMATION
DELIVERY
PROGRAM

The purpose of this element is to design an information program that will serve two functions: (1) alert the target population to the general--not specific--nature of the innovation and (2) convince them of the need to change the status quo.

17.1. Until the target population perceives a genuine need for the innovation, it will be disinclined to study information about it (Blanzy, 1974; Doak, 1970; Miller, 1974; Persselin, 1968; Sybouts, 1973; Svoboda & Wolfe, 1974; Williams, 1974).

17.1.1. Creating dissatisfaction with the status quo is one effective way of motivating people to change (Chamberlin, 1973; Meyer, 1969; Wolf & Fiorino, 1973).

17.1.1.1. The agent must not over-emphasize problems with the status quo, as such behavior might be interpreted as a bias against present roles and statuses (Becker, 1973 b; Hersch & Yarger, 1972).

17.2. It is important to inform the larger community of the pending innovation (Engel, 1974; McCracken, 1973; Nadler, 1974; Persselin, 1968; Rosenberg, 1974; Wood, 1973).

17.3. Successful design of an information program begins with preassessing accurately the existing communication network (Ohme, 1972), and attitudes toward and knowledge about the innovation and status quo.

17.3.1. Preassessing the larger community's attitudes and knowledge is also important (West, 1973).

17.4. The next step in the design of the information program is to establish realistic goals for information dissemination. These goals should be formulated after--not before--preassessments have been obtained.

17.5. An evaluation program should be designed that makes provision for obtaining both formative and summative assessments (Wolf & Fiorino, 1973).

17.6. The potential adopter's initial exposure to the innovation should be brief, interesting, and easy to understand (Havelock, 1973 a).

17.6.1. Because the message is brief, it is important to include information about its most important attributed, e.g., its development and functions (Foley, 1973), and exclude information about its less important details.

17.6.2. The message will be most interesting if it is presented at neither too fast nor too slow a rate (Toffler, 1970). Too fast a rate induces frustration; too slow a rate induces boredom.

17.6.3. The message will be easiest to understand if it includes neither too much nor too little information.

17.7. A variety of techniques and media can be used to disseminate information, including meetings, tours, literature, speaker presentations, demonstrations, films, person-to-person contacts, slides, cassettes, and drive-in conferences (Havelock, 1973 a; House, Kerins, & Steele, 1972; Hughes & Achilles, 1971; Richberg & Carswell, 1974; Sybouts, 1973; Voegel, 1971; Wray, 1972; Marker, Note 16).

17.7.1. Various criteria will enter into the agent/client's decision to use certain techniques and media rather than others, including such considerations as money, resources, and the unique characteristics of the innovation.

17.8. Synergy facilitates comprehension (Havelock, 1973 a; Havelock, Guskin, Frohman, Havelock, Hill, & Huber, 1973).

17.8.1. "Content synergy" is needed to increase the target population's understanding of the innovation and the need to change the status quo. Content synergy is defined as the process of communicating the same content using different messages.

17.8.2. "Media synergy" is needed to maintain the target population's interest in the innovation once it has been established initially. Media synergy is defined as the process of using different media to communicate the same message.

17.9. For most teachers, interpersonal/localite channels of communication are more important means of learning about innovations than mass media/cosmopolite channels (Hinkemeyer, 1971; Rittenhouse, 1971; Wolf & Fiorino, 1973).

17.9.1. Mass media/cosmopolite channels of communication have two important functions: (1) Early adopters depend on these channels more than later adopters (Bowers, 1938; Rogers & Beal, 1958; Van Den Ban, 1963; Wilkening, 1952); (2) They maintain interest in the innovation once an awareness of it has been engendered (Wolf & Fiorino, 1973).

The purpose of this element is to design a persuasion program for soliticing a commitment from the target population to implement the innovation.

18.1. Successful design of the persuasion program begins with accurately preassessing the existing communication network, and existing attitudes toward and knowledge about the innovation.

18.1.1. Preassessing the larger community's attitudes and knowledge is also important.

18.2. The agent/client should establish realistic goals for the persuasion program. These goals should be developed after--not before--pre-assessments are obtained.

18.3. An evaluation program should be designed which includes both formative and summative assessments.

18.4. The messages communicated in the persuasion program are quite different from those previously disseminated in the information program. Informative messages are one-way, brief and simple; persuasive messages are two-way, longer and considerably more complex.

18.5. Because of the exacting nature of persuasive messages, the target population should be afforded enough time to gain an understanding of them.

18.5.1. Several different techniques can be used which allow for greater time and interaction, including workshops, conferences, demonstrations, and video-tape presentations followed by group discussions (Havelock, 1973 a; House, Kerins, & Steele, 1973; Hughes & Achilles, 1971; Richberg & Carswell, 1974; Wray, 1972; Marker, Note 16).

18.5.1.1. Various criteria will enter into the agent/client's decision to use certain techniques rather than others, including such considerations as money, resources, and the unique characteristics of the innovation.

18.6. Both content and media synergy facilitate attitude change (Havelock, 1973 a; Havelock, Guskin, Frohman, Havelock, Hill, & Huber, 1973).

18.7. For most teachers, interpersonal/locative channels of communication are more important mechanisms for affecting attitude change than mass media/cosmopolite channels (Hinkemeyer, 1971; Rittenhouse, 1971; Wolf & Fiorino, 1973).

18.7.1. Homophilous interpersonal interactions are more effective in affecting attitude change than heterophilous interpersonal interactions (Allingham, 1964; Castillo, 1964; Chaparro, 1956; Chou, 1966; Feldman & Spencer, 1965; Troldahl & Van Dam, 1965; Warland, 1963; Booth, [illegible] e 6).

18.7.1.1. Traditional systems rely more heavily on homophily as a factor affecting attitude change than modern systems (Rogers & Svenning, 1969; Yadav, Note 24). More specifically, in traditional systems followers interact with opinion leaders no more technically competent than themselves; while in modern systems, followers interact with opinion leaders who are more technically competent than themselves (Rogers & Svenning, 1969).

18.7.2. Mass media/cosmopolite channels of communication are more important for early adopters than later adopters (Campbell, 1959; Carter & Williams, 1957; Rogers & Meyen, 1965).

18.8. High credible change agents are more presuasive than low credible change agents (Moore & Mizuba, 1969; Murray, 1960; Novotney, 1971; Taylor, 1971).

18.8.1. The target population's perceived homophily with the agent on such factors as social status, educational level, social participation and cosmopoliteness, is positively correlated with attitude change (Allahabad Agricultural Institute, 1957; Emery & Ceser, 1958; Jones, 1963; Maddox, 1965; Rogers & Shoemaker, 1971).

18.8.2. Perceived empathy of agent with target population is positively correlated with attitude change (Rogers & Shoemaker, 1971; Truax & Carkhuff, 1967; Watson & Glaser, 1965).

18.8.3. Perceived non-possessive warmth of agent with target population is positively correlated with attitude change (Truax & Carhuff, 1967).

18.8.4. Attitude change is positively correlated with the extent to which the target population perceives the agent is oriented toward that population, rather than the agency he serves (Dobyns, 1951; Erasmum, 1961; Saunders & Samora, 1955; Straus, 1953; Truax & Carkhuff, 1967).

18.9. Since homophily is such an important variable in the persuasion process, the agent is advised to recruit opinion leaders from within the target population to serve as inside change agents.

18.9.1. The change agent should conduct a training program for teaching opinion leaders how to persuade their followers to adopt the innovation (Vuicich, 1974).

18.9.1.1. Roleplaying exercises coupled with video tape feedback have been used effectively in teaching inside agents how to persuade the target population to adopt an innovation (Vuicich, 1974).

18.10. In general, teachers do not rely on disciplined inquiry (i.e., hard data and expert testimony) in their decisions to adopt or reject innovations (Wolf & Fiorino, 1973).

18.11. According to Rogers and Shoemaker (1971), when interpersonal persuasion is heterophilous, followers seek opinion leaders who:
a. are early adopters.
b. have greater change-agent contact.
c. have more education than themselves.
d. are cosmopolite.

18.12. Some systems' characterisitics significantly affect the success of the persuasion program.

18.12.1. If the systems' norms havor change, the opinion leaders are also likely to favor change (Marsh & Coleman, 1954; Sen, 1969; Herzog, Note 13). Since the opinion leaders are more easily persuaded to adopt the innovation when the systems' norms favor change, their followers are also likely to favor change.

18.12.2. A successful persuasion program is contingent upon a well functioning communication network (Van Wyck, 1971).

18.13. The target population's initial receptivity to innovation depends upon how much they were involved in previous elements of the FADS model (Buchan, 1971; Morse & Reimer, 1956; Van Wyck, 1971).

18.14. The effectiveness of the persuasion program is positively correlated with the extent to which the target population perceives that the innovation meets its needs (Adams, 1955; Dobyns, 1951; Sasaki, 1956; Caffrey, Note 7).

18.15. The target population must be given enough time to develop a genuine commitment to adtop the innovation. Pushing the client may engender resistance where none existed previously (Atherton, 1970).

The purpose of this element is twofold: (1) to design pre- and post-implementation training programs for teaching the target population how

to implement and maintain the innovation; and (2) to design pre- and post-implementation "support" programs which will allow the target population to implement and maintain the innovation in the most effective, efficient manner. Taken together, the training and support programs constitute what is referred to throughout the rest of this paper as the "action program."

19.1. The action program must be carefully thought out and devised before--not after--the change agent exposes the target population to information about the innovation (Blanzy, 1974; Chase & Clark, 1974; Hug, 1969; Kimbrough, 1967; Mahan, 1972 a; Ohme, 1973). Many educational change efforts have failed for lack of an effective action program (Houska, 1969).

19.1.1. For maximum effectivenss and efficiency, the action program should be designed so that it is compatible with the unique characteristics of the target population (Eyler, 1972; Heichberger, 1973; Houska, 1969; Mangione, 1970; Shiman & Lieberman, 1974; Svoboda & Wolfe, 1974).

19.1.2. Planning the action program will require considerable effort, time and money (Halverson, 1974; Hersh & Yarger, 1972; Sybouts, 1973), and the client should be warned accordingly.

19.2. Broad based participation should be solicited in the design of the action program. Administrators, teachers, parents, and students are all potentially important contributors (Atherton, 1970; Buchan, 1971; Houska, 1969; Howard, 1974; Hug, 1969; Ohme, 1973; Per Dalin, 1970; Rosenberg, 1974; Ruff, 1974; Van Wyck, 1971).

19.2.1. Federal, state and local agencies can also contribute to the program's design and development (Sieber, 1972).

19.2.2. There should be considerable interplay between inside and outside change agents. Working together, they can accomplish considerably more than either group working alone.

19.2.2.1. Outside agents bring a fresh perspective and expert knowledge to the change process (The American School Board Journal, 1974 a; Cooper, 1971; Lippitt & Fox, 1971).

19.2.2.2. Inside agents are aware of the unique characteristics and demands of the target population (Richberg & Carswell, 1974; Vuicich, 1974). Moreover, because of their homophily with the target population, inside agents are also perceived as highly credible (Havelock, 1973 b; Morrissett, 1974; Murray, 1970; Rittenhouse, 1971).

19.3. Designing effective pre- and post-implementation training programs begins with preassessing accurately the target population's attitudes toward, knowledge of, and ability to use the innovation.

19.4. On the basis of these preassessments, realistic end-point objectives should be established (Halverson, 1974; Hersh & Yarger, 1972; Ohme, 1973; Svoboda & Wolfe, 1974). Ideally, these end-point objectives should be stated as behavioral objectives (Charters & Pellegrin, 1972; Gross, Giacquinta & Bernstein, 1971; Linton, 1936; Sybouts, 1973).

19.4.1. Concensus should be reached on these objectives before moving to the next step in this element (Gorman, 1972).

19.5. It is also important to establish antecedent objectives leading toward the end-point objectives (Rhodes, 1969). Antecedent objectives are helpful in conducting formative evaluation and reinforcement programs.

19.6. Formative and summative evaluation programs should be developed which allow one to objectively measure progress made in meeting the antecedent and end-point objectives (Bass & Vaughn, 1966; Beckard, 1956).

19.6.1. The evaluation programs should make provision for measuring perceived change agent credibility.

19.6.2. The evaluation program should also make provision for measuring changes in student output (Wagschal, 1974 a).

19.7. Pre-implementation training programs have two primary purposes: (1) to train the target population how to properly use the innovation and provide them with a sound rationale for its use (Goodlad, 1971; Hughes & Achilles, 1971; Vuicich, 1974); and (2) to provide them with positive affective experiences so they become confident in their ability to use it (Adams, 1974; Ernst, 1974; Mahan, 1972 a).

19.7.1. There are many different types of pre-implememtation training programs, including demonstrations, conferences, workshops (these appear to be the most popular), video tape-group discussion kits, and college extension courses (House, Kerins, & Steele, 1972; Richberg & Carswell, 1974; Sybouts, 1973).

19.7.1.1. Criteria to be considered in the selection of a suitable type of program include: availability of resources, time, money and the unique characteristics of the innovation.

19.7.2. There are several guidelines that should be considered in the design and implementation of pre-implementation programs. Among them are:

a. Administrators should actively participate in the training program (Adams, 1974; Anderson & Horn, 1972; Dickenson Foster, Walker, & Yeager, 1970; Flanagan, 1970; Mahan, 1971 a; Richberg & Carswell, 1974; Vuicich, 1974). By participating in the training program, administrators obtain a clearer understanding of how the innovation works. Their participation is also taken by the target population as an indication of their support for the innovation.

b. Local university personnel who teach the methods' courses at the junior, senior, and postgraduate levels should also participate in the program (Vuicich, 1974). The experience of having participated in the program will impress upon them the importance of teaching their students to be favorably disposed toward educational change.

c. The program should be conducted at a convenient time (Ernst, 1974). It should not be conducted between the hours of 3:00 p.m. and 5:00 p.m. during regular school days (Mahan, 1972 a). Many programs have been conducted successfully during the summer months (Cirrincione, 1974; Richberg & Carswell, 1974; Vuicich, 1974).

d. The program should be conducted away from the regular working environment (Hearn, 1972; Mahan, 1972 a; Richberg & Carswell, 1974).

e. Participants should be afforded ample opportunity to criticize the innovation (Ernst, 1974; Hearn, 1972).

f. The curriculum should include content that is neither too difficult nor too easy (Ernst, 1974), and which includes many realisitc examples of how the innovation meets their teaching needs (Kelley, 1951).

g. The curriculum should also include cognitive and affective objectives stated in behavioral terms (Blaney & Mckie, 1969), and structured exercises which allow the participants to learn innovative behaviors by practicing them (Halverson, 1974).

19.7.3. Care should be taken to select candidates for participation in the pre-implementation program that would probably benefit from the program and contribute to the success of the post-implementation program (Vuicich, 1974).

19.7.3.1. Potential inside change agents should be included in the program. Their function would be to train other teachers how to use the innovation (Anderson & Horn, 1972; Cirrincione, 1974; Johnson, 1973; Richburg & Carswell, 1974).

19.7.3.2. Several different techniques can be used to identify promising candidates, including personal interviews, mail questionnaires and telephone interviews (Vuicich, 1974).

19.8. It is necessary to design and develop post-implementation training programs, because the short-term experience of a pre-implementation program seldom leads to long-term behavioral change (Halverson, 1974; Johnson, 1973; Ruff, 1974; Van Wyck, 1971).

19.8.1. Post-implementation programs also provide the opportunity to measure progress toward goals (Vuicich, 1974).

19.8.2. The design and development of post-implementation programs will include all of the same considerations that go into the design and development of pre-implementation programs. The differences between them are in the purposes to which they are put. In designing a pre-implementation program, one starts from the premise that the target population has only a limited knowledge of the innovation. In designing post-implementation programs, one assumes that the target population already knows a great deal about the innovation and has had considerable experience using it. Thus, the purpose of the former is to teach a target population how and why to implement an innovation it knows very little about, while the purpose of the latter is to help it adapt the innovation to its everyday working routine.

19.9. Among the possible tasks involved in the design and development of pre- and post-implementation support systems are the following. Design and develop:

a. a communication system for the efficient transfer of messages concerning all aspects of the action program (Van Wyck, 1971; Trump, 1974).
b. a reward system for reinforcing efforts to adopt and maintain the innovation (Trump, 1974).
c. a resource system for identifying, storing, and retrieving the materials necessary for successful implementation and maintenance of the innovation (Foley, 1970).

d. a leadership system for initiating and maintaining effective leadership throughout the diffusion process (Shane, 1973; Trump, 1974; West, 1973).
e. a system for recruiting needed personnel (West, 1973).
f. flexibility into the system so that last minute changes can be made quickly (Per Dalin, 1970; Trump, 1974; West, 1973).
g. a conflict resolution system that will allow agents to contend with unexpected events threatening to thwart the diffusion process (Chase & Clark, 1974; Ohme, 1972).
h. a public relations' system for initiating and maintaining cordial relations with the larger community (West, 1973; Nadler, 1974; Norman & Achilles, 1974).

19.10. Before implementing the innovation, the target population should be notified in advance of the events and activities involved in its implementation (Van Syck, 1971).

19.11. Some time are more opportune for the implementation of an innovation than others. Periods of fiscal adjustment, rapid growth and administrative personnel changes are opportune times (Hearn, 1972); crisis periods are inopportune times (Mahan, 1972 a).

19.12. There are several reasons why the information, persuasion and action programs should all be field tested before implementing them on a large scale basis:
a. It allows one to determine problems that could not be determined otherwise (Svoboda & Wolfe, 1974).
b. It suggests how the programs can be further modified to meet the unique needs of the target population (Becker, 1973 b; Hamilton, 1970; Havelock, 1973 a; Mahan, 1972 a; Mangione, 1970).
c. It allows the agent to conduct more rigorous (controlled) research than can normally be conducted in the typical classroom (Buchan, 1971).
d. It allows administrators an opportunity to save face if the innovation turns out to be a failure (Hearn, 1972).

19.12.1. Well designed field tests are based on clear-cut objectives.

19.12.2. Formative and summative assessment programs should be developed for evaluating the effectiveness of the field test (Mahan, 1972 a; Havelock, 1973 a; Mangione, 1970; Wofe, 1970).

19.12.2.1. The evaluation program should make provision for measuring change agent credibility.

19.12.1. The results of the evaluation should be disseminated to all persons who were either centrally involved in the field test, or who could in some way benefit from this knowledge (Mangione, 1970).

19.12.3. Field tests should be conducted in the "real world" of the on-going classroom (Hull, 1974).

19.12.4. Teachers and students should not be forced to participate in the field test. Rather, their participation should be solicited on a volunteer basis only (Hildebrand, 1974; Mahan, 1972 a; Miller, 1974).

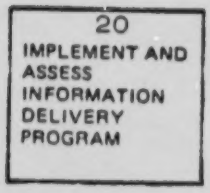
19.12.4.1. Volunteers tend to be more enthusiastic about an innovation and experience more success with it than non-volunteers. These feelings of enthusiasm and success may favorably dispose the rest of the target population toward the innovation (Buchan, 1971; Dutton, 1970, Herlihy, 1974; Miller, 1974).

19.12.4.2. If possible, two or more volunteers should be selected from the same school (Herlihy, 1974). They can give each other the moral support they need to maintain the adoption.

19.12.4.3. Administrators should support volunteers for their risk-taking behaviors (Herlihy, 1974).

19.12.5. The agent may encounter considerable resistance from the client to conduct the field test. According to a survey conducted by Wolf and Fiorino (1973), the diffusion process in educational systems usually constitutes only three stages: (1) awareness/interest, (2) evaluation, and (3) adoption. Thus, educational diffusion may differ considerably from the five stage model reported by Rogers and Shoemaker (1971): (1) awareness, (2) interest, (3) evaluation, (4) trial, and (5) adoption. The most conspicuous difference between these two diffusion processes is the absence of a trial stage in the former. This may well explain why so many diffusion attempts in educational systems are unsuccessful. Since educators typically forego evaluation of an innovation before adopting it, it is probable that they attempt to adopt many innovations inappropriate for their needs.

19.13. The agent/clinet should review the remaining elements in the FADS model and agree upon their mutual responsibilities in executing these elements. As before, designated representatives from each group should sign a contract clearly stipulating these responsibilities.



The information program has been well planned (element 17), little else remains to be done in this element, other than to implement it and periodically assess its impact. This element is concerned with describing a few cautions that should be taken in implementing the program and its assessment procedures.

20.1. The target population's first impressions of the innovation are the most important ones, because once formed, they are extremely difficult to modify (Secord & Backman, 1964). Thus a special effort should be made to avoid giving a negative first impression of the innovation (Taylor, 1971).

20.1.1. Demonstrations should be carefully planned and rehearsed. Any problems arising during a demonstration will tend to be attributed to the innovation itself (Havelock, 1973 a; Rhodes, 1969).

20.2. Maximum use should be made of all mass media, including newspapers, radio, and television (Hildebrand, 1974; McCracken, 1973). As previously discussed in elements 17 and 18, mass media channels do not have as much influence as interpresonal channels in creating teachers' awareness of innovations. But the mass media are extremely important information channels for the larger community.

20.2.1. School systems can capitalize on the electronic media's public service announcement obligations (Norman & Achilles, 1974). These brief spots can be used for either one of two purposes: (1) announce the time and place of open meetings pertaining to the innovation, and (2) publicly reinforce people for adopting the innovation.

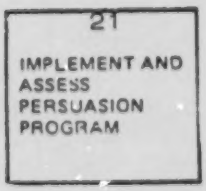
20.2.2. As a means of establishing good relationships with the press, reporters should be invited to participate in and report on the diffusion process (McCracken, 1973; Mullins, 1974).

20.2.2.1. Norman and Achilles (1974) suggest that a school system should hire a full time "public information officer", whose job would be to cultivate and maintain cordial, functional relationships with the media.

20.3. In conducting formative assessments on the information program, data should be quickly analyzed, interpreted, and distributed in order for it to be used mose effectively (Mahan, 1972 a).

20.4. The results of the information program's summative evaluation should be thoroughly discussed before moving on to the next element in the FADS model. Some of the information obtained from the summative evaluation may influence the design of the persuasion program (element 21) in ways not expected.

20.4.1. The results of the information program, as measured by both formative and summative evlauations, should be published and disseminated to all relevant persons. If possible, they should be submitted for publication in an appropriate journal.



The amount of time and effort expended in implementing the persuasion informationl be considerably greater than that expended in implementing the an innovation than to evoke a commitment to adopt it (Rogers & Shoemaker, 1971).

21.1. The agent/client should carefully review the persuasion program before implementing it. Every participant in the program should understand what his job is and how it relates to what everybody else is doing.

21.1.1. The agent/client may want to revise previously established end-point objectives as a result of information obtained during the information program.

21.1.2. Before implementing the persuasion program, the agent/client should make sure that all necessary materials have been procured and stored in easily accessible locations.

21.2. After implementing the persuasion program, continuous communication should be maintained among all relevant personnel, especially between inside and outside change agents.

21.3. The agent/client should expect some resistance to their persuasive messages (Stanavage, 1972). The idea of kindergarten took fifty years to diffuse through tht educational system (Voegel, 1971; Mort, 1964). The following are some of the more common sources of resistance to innovation:

a. Organizational structure. School systems typically have a rigid hierarchial organizational structure (Anthony, 1974; Granito, 1972).
b. Lacking change apparatus. School systems typically lack a built-in mechanism for making significant change (Blanzy, 1974; Gillie, 1971; Raulerson, 1972; Stanley Peterfreund Associates, Note 26).
c. Underfunding of education. Schools are typically underfunded and without the resources to risk significant change (Anthony, 1974: Blanzy, 1974; Miller, 1973; Persselin, 1968; Shane, 1973). A depressed economy exacerbates the funding problem. Increasing inflation and recession discourage voters from supporting school bonds (Shane, 1973).
d. Lacking incentives for change. Teachers are seldom provided external incentives for change; i.e., salary increases and promotions are seldom contingent upon improved performance (Anthony, 1974; Miller, 1973).
e. Commitment to status quo. Most educators, especially administrators, are committed to maintaining the status quo (Adams, 1974; Becker, 1973 a; Hull, 1974; Kimbrough, 1968; Meyer, 1969; Miller, 1973; Miller, 1974; Nadler, 1974).
f. Ignorance. Some educators are uninformed about the innovation (Miller, 1973). Since they do not know anything about it, they are understandably wary of its potential effects.

g. Misinformed. Some educators are misinformed about the innovation. Because they do not know much about the innovation, they are not able to differentiate between accurate and inaccurate information about it. If they are inaccurately apprised of the innovation's function and performance, these negative first impressions may be difficult to dispel (Taylor, 1971).

h. Fear of the unknown. Many educators are innately fearful of the unknown. Change brings with it some consequences that cannot be predicted ahead of time. Educators may conjure up frightful images of what to expect if the innovation fails (Atherton, 1970; Brown, 1971; Gray, 1969; Pine & Horne, 1969).

i. Previous change efforts. Bad experiences with previous innovations make educators reluctant to implement future innovations (Shane, 1973; Steere, 1972).

j. Peer pressure. Some teachers are reluctant to change because of peer pressure to maintain the status quo (Miller, 1973).

k. Society's attitudes. In general, people do not want schools changed (Anthony, 1974; Granito, 1972). Society views the school's function as that of maintaining the status quo--not changing it.

l. Ex-Innovator. Oddly enough, sometimes the worst resistance to an innovation comes from someone who is himself an ex-innovator (Steere, 1972). The ex-innovator may have previously used a successful innovation effort to get to where he is now. Now that he has obtained a comfortable measure of prestige and power, he does not want to risk loosing it. So, ironically, the person who could do the agent the most good is also the person who could do him the most harm.

m. Unrealistic goals. Teachers will resist an innovation if they perceive that it is too demanding of their time and energy (Hetzel & Barnard, 1970; Pulleyblank, 1971; Shane, 1973).

21.4. Not all resistance is bad (Heichberger, 1974; Pulleyblank, 1971). Resistance can be positive if it thwarts unnecessary or harmful change, or if it draws attention to problems with the innovation that the agent/client had not previously considered.

21.5. No overt resistance is the worst kind of resistance (Hearn, 1973; Heichberger, 1974). Silence in the face of change suggests that either the target population fully accepts the innovation or is tacitly opposed to it. The latter is more likely than the former.

21.5.1. Covert resistance may take several different forms:

a. Teachers may use the innovation in a different way than originally intended (Sturges & Mrdjenovich, 1973).

This is undesirable because people are deceived into believing that significant change has occurred when in fact it has not (Shane, 1973).

b. Teachers may not use the innovation at all (Sieber, 1972). Their low visibility makes it easy for them to deviate from directives without being noticed.

21.6. There are many different ways to manage resistance.

21.6.1. Traditional methods of managing resistance include competition, compromise and operation. According to Heichberger (1974):

a. Competition is bad because it involves one party loosing everything;

b. Compromise is decieving because although it should involve the surrendering of an equitable number of contingencies from each conflicting camp, it usually forces one camp to give up more than the other;

c. True cooperation is the most difficult to implement, but is also the most effective.

21.6.2. Some vocal critics of innovation will change attitudes if the agent meets criticism with understanding and the ability to answer questions clearly (Hearn, 1972; Perryman, 1973; Watson & Glaser, 1965).

21.6.3. The target population should be given enough time to overcome their own resistance (Atherton, 1970; Perryman, 1973). Considerable change requires considerable preparation, both mental and physical. Trying to force the target population to commit itself to change before it is ready may backfire and produce more resistance than existed previously (Adams, 1974).

21.7. Resistance from the larger community can be overcome by meeting complaints with immediate, direct and forthright responses. Hopefully, the agent/client have already designed and implemented a mechanism for allowing parents to bring their complaints to administrators. Ideally, this mechanism is informal and allows the parents to speak with persons in leadership positions (Stough, 1974).

21.7.1. The following are some of the mechanisms that can be used in overcoming resistance from the larger community:

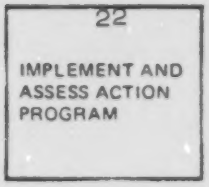
a. open meetings (Herlihy, 1974; Hildebrand, 1974; McCracken, 1973; West, 1973);
b. distributing literature such as bulletins, handbooks, and PTA fliers (Buchan, 1971; Hildebrand, 1974; McCracken, 1973);
c. workshops (Buchan, 1971);
d. open school policy (Buchan, 1971);
e. individual interviews (Hildebrand, 1974);
f. demonstrations of the innovation in operation (House, Kerins, & Steele, 1972);

21.8. If the persons resisting the innovation, teachers as well as parents, are convinced that the agent is honest in his dealings with them, and has the students' as well as their own best interests at heart, then their resistance can be reduced to a level allowing for successful implementaiton of the innovation.

21.9. Throughout the implementation of the persuasion program, formative assessments should be made to assess the effectiveness of the program and also to identify and resolve problems.

21.10. Upon conclusion of the persuasion program, a summative evaluation is made to assess the overall impact of the persuasion program. The data should be carefully studied for possible input into the action program (element 22).

21.10.1. The results of the formative and summative evaluations should be documented and distributed to all relevant personnel. If possible, these results should be submitted for publication in an appropriate scholarly journal.



In implementing the action program, one assumes that a commitment has already been made by the target population to adopt the innovation. The

task now is to teach the target population how to implement the innovation. Some change agents would advocate forcing the target population to adopt the innovation if they have not by their own volition decided to do so. This approach to educational change is diametrically opposed to one of the cornerstone assumptions underlying the FADS model: that effective change is change that is cooperatively planned and cooperatively implemented. Thus, as far as the FADS' philosophy is concerned, coerced change should be eschewed.

22.1. The target population's willingness to participate in the action program is positively correlated with the extent to which its representatives participated in previous elements of the FADS model (Bailey, 1971; Johansen, 1967; Morse & Reimer, 1956; Sybouts, 1973).

22.2. The agent/client should carefully review the action program before implementing it. Every participant in the program should understand what his job is and how it relates to what everybody else is doing.

22.2.1. The agent/client may want to revise previously established antecedent and end-point objectives as a result of information obtained during the information and persuasion programs (elements 20 & 21).

22.2.2. Before implementing the program, the agent/client should make sure that all necessary materials have been procured and stored in easily accessible locations.

22.3. After implementing the action program, continuous communication should be maintained among all relevant persons, especially between inside and outside change agents (Blanzy, 1974; Eyler, 1972; Foley, 1970; Havelock, 1973 b; Taylor, 1971; West, 1973).

22.3.1. A supportive relationship between the target population and the client promotes upward communication about the innovation (Likert, 1961; Likert, 1967; Lippitt, Watson & Westley, 1958; Read, 1962).

22.3.2. Communication among change agent, client, and target population by tleephone with a written follow-up is more effective than either of these techniques used alone (Mangione, 1970).

22.4. The action program's success is positively correlated with the degree of internal harmony within the change agent team (Vuicich, 1974). The change agent team should have periodic meetings to discuss and resolve affective problems which may impede its performance (Luke & Mial, 1971).

22.5. Action program success is positively correlated with the amount of effort the change agent puts into the implementation process (Ross, 1952; Singh, 1952; Hursch, et al., Note 14; Nye, Note 17).

22.6. The action program's success is positively correlated with the degree of perceived credibility for the change agent credibility (Rogers, 1969).

22.6.1. The change agent's credibility is positively correlated with perceived:

a. empathy of agent with target population (Rogers & Shoemaker, 1971; Truax and Carkhuff, 1967; Watson & Glaser, 1965).

b. non-possessive warmth of agent with target population Truax & Carkhuff, 1967).

c. agent orientation to client rather than the agency he serves (Dobyns, 1951; Erasmus, 1961; Saunders & Samora, 1955; Straus, 1953; Truax & Carkhuff, 1967).

22.7. The action program's success is positively correlated with the extent to which the agent works closely with opinion leaders (Gillie, 1961; Hearn, 1972; Miller, 1969; Alers-Montalvo, Note 1; Bice, Note 5).

22.8. The action program's success is positively correlated with the amount of help the target population receives in implementing the innovation (Blanzy, 1974; Brickell, 1964; Coe, 1974; Flanagan, 1970; House, Kerins & Steele, 1972; Orlosky & Smith, 1972; Woods, 1967; Sybouts, 1973; Caffrey, Note 7).

22.8.1. Consultants can do much to help the target population implement the innovation. The agent, client, and target population should all participate in establishing the consultant's duties (Mahan, 1972 a).

22.8.1.1. A consultant's primary effectiveness lies in giving practical, in-class demonstrations of the innovation (Coe, 1974). In-class demonstrations also afford the agent/target population opportunities to modify the innovation in accordance with regular classroom activities. Such modifications are crucial to the success of the action program (Charters, 1972; Ellis, 1971; Havelock, 1973 a; Seaton, Lasky & Seaton, 1974; Shiman & Lieberman, 1974; Trump, 1974).

22.8.1.2. The following are some guidelines on how to use the consultant most effectively:

a. Consultant/teacher meetings should be planned ahead of time and directed toward answering specific questions (Mahan, 1972 b).

b. Occasionally, the consultant should visit the teacher unexpectedly, as this will highten the frequency of the innovation's use (Ruff, 1974).

c. The consultant's feedback should be immediate and directed toward giving specific corrections and reinforcement (Seaton, Lasky, & Seaton, 1974).

d. In communicating with the teacher, the consultant should use clear, simple language, be redundant, and speak slowly (Oakland, 1971; Seaton, Lasky & Seaton, 1974).

22.8.2. Teachers implementing an innovation should be selected from the same grade levels at the same school (Mahan, 1972 a). This is so they can give each other the moral support necessary in undertaking the risks inherent to any change.

22.8.3. Teachers should be provided with video taped examples of how to implement the innovation (Mahan, 1972 a). The consultant will not always be available to resolve problems. Some of these problems can be resolved by viewing the innovation as it is being correctly implemented.

22.9. In some cases, the innovation cannot be effectively implemented unless elements from the larger community are included in its design and implementation (Brickell, 1964; Havelock, 1973 a; Herlihy, 1974; Hull, 1974; Lighthall, 1973; Miles, 1967; Nadler, 1974).

22.10. Crucial to the success of an action program is the availability of sufficient materials needed to implement and maintain the innovation (Charters, 1972; Hansen, 1974; House, Kerins & Steele, 1972; Mahan, 1972 a; Marrow, Bowers & Seashore, 1967).

22.10.1. A staff person should be assigned the specific responsibility of keeping a current inventory of materials and ordering more when they run out (Anderson & Horn, 1972).

22.10.2. A small cash fund should be available for purchasing unexpected essentials and performing emergency repairs (Anderson & Horn, 1972).

22.11. The target population should be given enough time to integrate new innovative behaviors with previously existing ones (Becker, 1973 a; Charters, 1972; Heichberger, 1973; Heichberger, 1974; Mahan, 1972 a; Taylor, 1971).

22.11.1. Administrators can help by tolerating a reasonable degree of imperfection in implementing the innovation (Heichberger, 1974).

22.12. Throughout the implementation of the action program, formative assessments should be made to assess the effectiveness of the program, and to identify and resolve problems as they arise.

22.13. Upon conclusion of the action program, a summative evaluation is made to assess the overall impact of the action program.

22.13.1. The results of the summative evaluation can also be used to test theoretical assumptions underlying the diffusion process in school systems. For instance, the following theoretical proposition is offered by Rogers and Shoemaker (1971): "Later adopters are more likely to discontinue innovations than early adopters (p. 350)." Data gathered for the summative evaluation could be used to test this proposition.

22.14. The results of the fomative and summative evaluations should be documented and distributed to all relevant personnel. If possible, these results should be submitted for publication in an appropriate scholarly journal.

23

IMPLEMENT INITIAL (FOFMATIVE) EVALUATION

Formative evaluations serve two important functions: (1) They allow one to detect small problems and resolve them before they become serious ones (Karns & Wenger, 1973; Heichberger, 1974). (2) They allow one to chart the progress made in diffusing an innovation. This latter information can be disseminated to persons interested in diffusion research.

23.1. The agent/client should review the formative evaluation program before implementing it.

23.2. There should be broad based participation both in the collection and analysis of data (Watson & Glaser, 1965).

23.2.1. Independent agents should help, because they will be less biased in their collection and interpretation of data (Havelock, 1973 a). An independent agent is defined as someone who is not a member of the agent, client, or target population groups.

23.2.2. Target population members should help, becuase they can more easily collect certain kinds of data than outside change agents (Cirrincione, 1974; Hull, 1974; Johnson, 1973).

23.2.3. Students can help interpret the data (Buchan, 1971; Lagenbah & Hinkemeyer, 1974).

23.3. Formative evaluations should be frequent, because frequent evaluation affords frequent opportunity for improvement (Blanzy, 1974; Hull, 1974; Karns & Wenger, 1973; Lata & Papay, 1971; Ohme, 1973).

23.3.1. The assessment team should have frequent meetings to discuss problems in implementing the innovation (Mahan, 1972 a). Mahan also suggests that these meetings be documented in the form of progress reports so that the assessment team will have documentation for each bit of progress made in implementing the innovation.

23.4. The analysis, interpretation and feedback to schools should be done quickly if they are to derive maximum benefit from these assessments (Mahan, 1972 a).

23.5. If formative evaluations indicate the innovation is failing, it is best to admit defeat and terminate the diffusion process (McCracken, 1973). Continued implementation of an ineffectual innovation may allow administrators to save face by not admitting defeat, but the cost in human and nonhuman resources is seldom worth it.

24
DEVELOP AND ASSESS REINFORCEMENT PROGRAM FOR INITIAL ADOPTION

The success of the action program is dependent upon the effectiveness of the initial reinforcement program (Chester & Fox, 1967; Gross & Herriott, 1965; Halpin, 1967; Hull, 1974; McGregor, 1960; Sieber, 1972; Stern, 1950; Voegel, 1971; Wood, 1973). Unless adopters are reinforced for their initial risk-taking behavior, it is unlikely they will take subsequent risks to implement the innovation.

24.1. The amount of reinforcement should be commensurate with the degree of risk taken in implementing the innovation (Goodlad, 1971).

24.2. Reinforcement should be immediate for maximum effect (Skinner, 1968).

24.3. The agent should determine which reinforcers are most suitable for the target population. Possible reinforcements include:
   a. sufficient resources with which to practice the innovation (Sybouts, 1973);
   b. opportunity to consult with experts about problems concerning implementation (Sybouts, 1973);
   c. course credit used toward recertification and salary increments (Anderson & Horn, 1972; Sybouts, 1973);
   d. money (The American School Board Journal, 1974 b).

24.4 Social reinforcement is one of the cheapest yet most effective reinforcers (Eyler, 1972; Heichberger, 1973; Hilfiker, 1970; Marrow, Bowers, & Seashore, 1967). A teacher is likely to maintain an innovation if he perceives that the administration is appreciative of his efforts to implement it.

24.5. The agent/client should meet soon after the initial reinforcers have been administered in order to discuss and document their effectiveness.

DEVELOP AND ASSESS REINFORCEMENT PROGRAM FOR MAINTAINING ADOPTION

25

The success of the action program is dependent upon the effectiveness of the reinforcement program to maintain the adoption (Eyler, 1972; Goodlad, 1971; Rhodes, 1969; Woods, 1967; Foshay, Note 10).

25.1. The amount of reinforcement should be commensurate with the degree of rish taken in implementing the innovation (Goodlad, 1971).

25.2. Reinforcement should be administered frequently for maximum effect (Skinner, 1968).

25.3. The agent should determine which reinforcers are best suited for the target population. These reinforcers may or may not be similar to those used to reinforce initial implementation of the innovation.

25.4. In addition to the target population, several other groups need reinforcement as well.

25.4.1. Students need reinforcement. They are being forced to learn a new way of learning and should be reinforced for their efforts. We sometimes forget that the most important goal of the innovation is to better student performance.

25.4.1.1. An effective way of reinforcing students is to express appreciation for any improvement they make as a result of the innovation (Herman, 1974).

25.4.2. Parents need reinforcement. They are risking their children's welfare when they allow them to participate in innovative programs.

25.4.2.1. As with students, an effective way of reinforcing parents is to express appreciation for student progress made as a result of the innovation (Coe, 1974; Herman, 1974)

25.4.3. Inside agents need reinforcement. Inside agents need to perceive that they are being appreciated for efforts that go beyond what is typically expected of teachers.

25.4.3.1. Small consultant fees are one way of reinforcing the inside change agent (Vuicich, 1974).

25.4.4. Administrators need reinforcement (Nadler, 1974). If the innovation fails, the administrator could loose his job.

25.4.4.1. A salary bonus upon completion of specified antecedent objectives is one means of reinforcing the administrator's behavior.

25.4.5. Outside change agents need reinforcement. The outside change agent is, of course, being paid for his efforts. But this may not be enough.

25.4.5.1. A good way to reinforce outside change agents is through the publication of articles derived from the diffusion effort. An increased number of publications leads to increased prestige and an increased demand for his services.

25.5. Social reinforcement is superior to most other forms of reinforcement. Expressing appreciation for one's innovative behavior is usually sufficiently reinforcing to sustain the innovative behavior.

25.5.1. Recognition from peers is important (Miller, 1974).

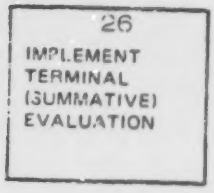
25.5.2. Recognition from opinion leaders is important (Mahan, 1972 a).

25.5.3. Recognition from administrators is important (Miller, 1973; Stephens, 1974; Sturges & Mrdjenovich, 1973; Taylor, 1971). Administrators can play a particularly important role by being tolerant of errors and not demanding that the innovation be implemented perfectly all the time (Sybouts, 1973).

25.6. Intrinsic reinforcement is another powerful reinforcer (Miller, 1973; Spuck, 1974). Teachers need to believe that what they are doing is resulting in improved performance for their students. If teachers can be persuaded to believe that their students are benefiting from the innovation, then it is likely that they will continue to implement the innovation.

25.7. Management by objectives is one means of administering a reinforcement program (Becker, 1973 b; Sybouts, 1973). If antecedent objectives have been determined ahead of time, then appropriate reinforcements can be administered upon completion of each of the antecendent objectives.

25.8. The agent/client should meet frequently to assess the effectiveness of the reinforcement program and make appropriate modifications.



There are essentially two reasons for conducting a summative evaluation. One is to measure the extent to which the innovation has become an integral part of the target population system (Goodlad, 1971; House, Kerins, & Steele, 1972; Lippitt, Watson, & Westley, 1958). Another is to evaluate action program with the intent of suggesting modifications to increase its effectivenss, but reduce its cost.

26.1. Results of the summative evaluation may also be suggestive of ways to further maintain the innovation (Cirrincione, 1974).

26.2. The summative evaluation should be conducted in part by an independent agent (Havelock, 1973 a).

26.3. The summative evaluation should be conducted in part by members of the client and target population groups (Flanagan, 1970).

26.4. The summative evluation should be conducted in part by students (Buchan, 1971; Lagenbah & Hinkemeyer, 1974).

27

REPORT TO TARGET AND CLIENT POPULATIONS

As a matter of courtesy, the agent should discuss the results of the summative evaluation with the client and target population groups before disseminating them. This is a continued application of the principle that the agent is the servant of the client organization. It also helps insure cooperation between the organization and agent in future efforts to diffuse innovations.

27.1. As in other elements concerned with evaluating the diffusion process, all relevant and interested persons should be involved in discussing and interpreting the results of the summative evaluation (MacBeth, 1974; Williams, 1974; Wood, 1973).

27.2. Students may be able to help in interpreting the results of the summative evaluation (Buchan, 1971; Lagenbah & Hinkemeyer, 1974).

27.3. Client and target population group members may also be helpful in interpreting the results of the summative evaluation.

28
DOCUMENT AND DISSEMINATE RESULTS OF TERMINAL EVALUATION

Documenting and disseminating the results of the diffusion process is a most important matter. Only by sharing the results of one's diffusion efforts is it possible for others to benefit from one's successful or unsuccessful experiences.

Occationally, persons are too embarassed or otherwise reluctant to document and disseminate the results of their unsuccessful diffusion efforts. This is indeed unfortunate, as a discussion of the causes and results of their failings could make it possible for others to avoid the same painful experiences.

In general, two types of documentation are needed. One type is a detailed, step-by-step description of the procedures used in selecting and diffusing an innovation. The purpose of this sort of documentation is to provide interested persons with a practical guide for selecting and diffusing an innovation. Another type of documentation needed is the type of brief, scholarly report likely to appear in a scholarly journal. The purpose of this type of documentation is to make available empirically supported propositions so urgently needed in the construction of diffusion theory.

28.1. The efficiency of change in schools depends upon being able to draw from past experiences with educational change (Mangione, 1970; Miles, 1964; Nadler, 1974; Ohme, 1972).

28.2. Social scientists have a responsibility to document and disseminate the results of their research, as the sharing of knowledge is a necessary condition for the growth of science (Bachrach, 1966; Russell, 1961; Sellitz, Jahoda, Deutsch, & Cook, 1959).

28.3. Disseminating the results of diffusion efforts allows the scientific community to evaluate critically the means by which those results were obtained (Proger, 1971; Todd & Andersen, Note 25).

28.4. Documentation is also needed in order to substantiate claims of success or failure for the diffusion effort (Pyatte, 1974).

Toward a Theory of Diffusion of Innovations in Educational Systems

In the previous section, the exant literature on the diffusion of innovations, particularly the diffusion of innovations in educational systems, was reviewed and related to appropriate elements of the FADS Model. However, this literature review does not integrate all or even most of the significant work on diffusion. By design, a concerted effort was made to integrate empirical findings and philosophical speculations determined to be important in the early stages of the model's development.

A much more exhaustive review of the literature remains to be undertaken before assertions can be stated confidently regarding needed areas of empirical inquiry and for bona fide theory construction. To risk making such recommendations at this early stage in the review process is to risk making assertions in ignorance of work, perhaps very good work, that has already been done in these areas. Accordingly, such recommendations will be held in abeyance until a more complete literature review is available.

Apart from suggesting needed areas of empirical inquiry, a literature review also serves a useful function for theory construction. Completion of a more comprehensive literature review is not necessary to describe the form and substance of the type of theory one eventually hopes to construct. Furthermore, a preliminary discussion so focused may be instrumental in guiding future research efforts designed to close gaps in conceptual thinking, which must be closed before legitimate theory construction can begin.

The discussion that follows describes some preliminary views concerning the form and substance of the type of diffusion theory that seems most productive for our purposes. Discrepancies of varying magnitude may be apparent between theory construction as it is conceptualized here and as it is presented in the works of some leading philosophers of social science, e.g., Rudner (1966), Smart, (1968), and Winch (1958). Where differences of opinion exist, they will be manifested in the recommendations and assertions made herein. No attempt is made to explicate these differences of opinion because the central purpose of this section is to express some first thoughts about working definitions and a systematic program for theory construction.

Some of the different ingredients and processes that go into the construction of theory are described next, with related applications to developing a systematic theory of diffusion. We have elected to focus on definitions and interrelationships of pertinent ingredients and processes relevant to theory

construction, rather than a detailed program for developing and integrating them. Finally, we conclude with a brief discussion of how a model can serve a conceptual function in the construction of theory, including our efforts to employ these procedures in developing the FADS model.

Components Relevant to Theory Construction

There is a substantial number of important components and processes relevant to the construction of a theory of the diffusion of innovations in educational systems. While space available precludes discussing all of them and restricts the detail in which those selected can be considered, six of the salient elements required for theory construction are examined next. In addition, some application of each component is made to the development of a theory of diffusing innovations in educational systems.

First, an important ingredient in theory construction is a parsimonious, comprehensive, reasonably complete explanation of the human event or activity of central concern to the theory. In the present instance, we are concerned with building a theory of the diffusion of innovations in educational systems. We define this phenomenon as the adoption and continued implementation of an innovation among significant numbers of persons in a given educational system. "Innovation" is defined as a new behavior as perceived by most persons in the educational system. An "educational system" refers to a group of individuals ascribing to common group norms and goals for the purpose of teaching skills and knowledge to a given student population. Definitions of this sort help to clarify the central thrust of the endeavor and facilitate efforts to construct verbal statements either clarifying or verifying the limiting conditions under which this phenomenon takes place.

Second, a "rationale" is also important for theory building. Rationale is here deinfed as the explanation of the importance of the theory. It may be constituted of one or more assumptions that should be clearly articulated and made public so that the scientific community has ample opportunity to reflect upon this explanation as suitable justification for expending valuable materials and human effort in developing the theory. Presently, the rationale for building a theory of educational diffusion has not been completely formulated. Even so, there are at least two explicit assumptions that when taken together are themselves adequate enough reason to build a theory of educational diffusion: Assumption #1: Change is an inevitable attribute of educational systems. Assumption #2: Planned change is less pernicious to the human condition than unplanned change. From these two assumptions we may reach a conclusion that may serve as an additional assumption to be built into our rationale: Since change is an inevitable attribute of educational systems and since planned change is more desirable than unplanned change, then it appears that the development of a systematic program for implementing planned change is more desirable than allowing unplanned change to occur according to its own devices.

Similarly, other assumptions and conclusions can be made about the need to develop a theory of educational change. Weaving them together in a logical, essay format facilitates the emergence of a powerful case for expending the considerable time and human energy necessary to develop defensible theory of diffusion of educational innovations.

Third, a set of concepts and constructs are needed. Concepts are verbal lables for entities that either affect or are effected by the phenomenon under consideration (Marx, 1971). The following are examples of such diffusion concepts: change agent, target population and innovation. Constructs are verbal labels for actions or events that affect or are effected by the phenomenon under examination (Marx, 1971). The following are examples of diffusion constructs: implementation, resistance, and maintenance. Note that constructs clearly denote human action taking place among various actors in the diffusion process, while the concepts are merely symbols for nouns that in and of themselves do not denote activity. Concepts and constructs are important, becuase they provide us with a vocabulary and syntax (Rudner, 1968) with which to make exact our explanations and predictions about the human phenomenon under investigation.

Fourth, a set of interrelated "axioms" is also needed that function as broad guildelines in the construction of theory. An axiom is a verbal statement linking together one or more concepts with one or more constructs for the purpose of describing a universal condition or action inherent to the phenomenon for which the theory is being constructed. Because axioms are intended to be universal statements, they are perforce explained in highly abstract terms. In reality, however, axioms may not be completely universal, and may apply to most--but not all--instances of the phenomenon under consideration. The following are examples of axioms: (1) Change agents can either positively or negatively affect a target population's willingness to implement an innovation. (2) Perceived change agent's credibility can either positively or negatively affect a target population's willingness to implement an innovation. (3) Perceived change agent's credibility can either positively or negatively affect a target population's willingness to maintain an innovation.

Note that each of these axioms bear a logical and temporal relationship with one another. The second axiom is narrower in scope than the first, in that it indicates only one of the many factors that can influence a change agent's effectiveness. The third axiom is temporally related to the second, in that initial implementation of an innovation must occur before its continued maintenance.

Fifth, propositions are needed in theory construction. The axioms presented above are not nearly precise enough to suggest clear indications

of how change agents affect the diffusion process. Two important ingredients are lacking from these verbal statements. One ingredient lacking is a prediction of the direction in which the change agent will influence the diffusion process; the other is a precise statement of the change agent's attributes that will influence the diffusion process in one or another direction.

Propositions provide these two missing ingredients. Accordingly, they are clearly suggestive of research hypotheses to be tested in verifying a diffusion theory. The following are examples of propositions that can be formulated which give clearer definition to the second axiom presented above (1) Perceived change agent's expertise increases the target population's willingness to implement an innovation. (2) Lack of perceived change agent's empathy with the target population decreases the target population's willingness to implement the innovation. Each of these propositions speak to a different attribute of a change agent's credibility and each clearly describes the direction in which it influences the implementation stage of the diffusion process.

Sixth, research hypotheses are needed for empirically testing propositions. Research hypotheses may be phrased using the same wordage of which propositions are composed. They differ in that the concepts and constructs included in their definition are tightly linked to operational definitions used in testing the parent proposition. For instance, the concept "target population" can be operationally defined in a number of different ways. In one study of diffusion it may be defined as the population of second and third grade school teachers within a given school district. While in another study, it may be defined as the population of all high school chemistry teachers in a given city.

Axioms, propositions, and hypotheses have a logical relationship with one another. Axioms are typically fewer in number than propositions; propositions, in turn, are fewer in number than hypotheses. This is necessarily so because of the different levels of abstraction at which each is articulated. Axioms are more abstract than propositions; propositions, in turn, are more abstract than hypotheses. As implied throughout this discussion, these components bear a deductive relationship with one another. This deductive relationship gives force to the well known and widely accepted claim that support obtained for the lowest order deductions, i.e., hypotheses, applies with equal weight to the axioms and propositions from which those hypotheses were deduced. Effort such as that described here is necessary in the future if a theory of the diffusion of innovations in educational systems is to evolve.

Theory Construction Through Model Building

The previous section concerning theory development provides a futuristic perspective of the work ahead for those interested in the diffusion of innovations. Most of the work to date on the diffusion of innovations has been directed toward the construction of models. Given the current status of the diffusion literature, the construction of models is a most appropriate endeavor. Accordingly, our concluding comments deal briefly with model building as a viable approach to theory construction.

There are three essential ways in which a model can serve a conceptual function in the construction of theory: (1) it specifies variables of key interest (Smith, 1971); (2) it describes relationships among these key variables (Smith, 1971); and (3) it clearly indicates further conceptual and empirical research that needs to be done to clarify and support the theory (Lippitt, 1973). Each of these has been of principal concern in the construction of the FADS Model. At every step in its development, careful consideration was given to each of these matters to assure a realistic and defensible ordering and description of its elements and components.

In its present inchoate form, the FADS Model is not yet ready to be fully developed into a theory. It is still very much lacking the extensive empirical support that Gergen (1971) asserts is an important criterion in theory construction. Faced with the choice of attempting to develop a formal theory of diffusion before the FADS Model is completed, or waiting until additional linformation is available, we have opted to do the latter. At some future date, when the FADS Model has been duely expanded to reflect a fuller representation of diffusion knowledge, we shall turn to the task of formalizing and developing a comprehensive theory of diffusion in educational systems.

In closing, we invite readers to share their responses to this paper with us. All comments should be sent to the first author in care of the following address:

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